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GLEANINGS

IN BEE CULTURE



DR. C.C. MILLER

THE A.I. ROOT CO.
MEDINA, OHIO.

Western Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

North Texas Beekeepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS in stock, and sell them at Factory Prices. Don't forget that we can furnish anything in the way of field or garden seeds, plants, and poultry supplies. Large illustrated catalog for 1906 free on application. Mention *Gleanings* when you write. Wish to purchase Beeswax.

Texas
Seed and Floral Co.
Dallas, Tex.

SPRINGFIELD MISSOURI

We carry a
large and complete stock of
The ROOT'S 1906
BEE-SUPPLIES

All orders filled same day as received, thus insuring for our customers quick service, Springfield freight rates,

FACTORY PRICES

Send for seed catalog, bulb and plant catalog, Cyphers incubator catalog, The A. I. Root Co. bee supply catalog

SPRINGFIELD SEED CO.
Springfield, Mo.

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

After the 15th or 20th of April I can supply Red-clover and Golden Italian queens promptly.

I am now paying 25c cash and 28c in trade for average clean beeswax delivered here.

Call or Address

Udo Toepperwein - San Antonio, Texas
1322 South Flores Street

C. H. W. Weber,

Headquarters for

Bee - Supplies.

**Distributor of Root's Goods Exclusive-
ly, at Root's Factory Prices.**

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.]]

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional well, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled, the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

TOLEDO.—The market on honey at this writing is very quiet on account of heavy shipments of strawberries from the South. Strawberries are retailing at 10 cents per quart, and this has a tendency to drive honey out of the market. We do make some sales—fancy white, 15 to 16; No. 1 at about 14, with a little or no demand for dark. Extracted, in barrels, fair demand as follows: White clover, 6 to 6½; amber, 5 to 5½. Beeswax is more plentiful, and we are still paying 28c cash, 30c in trade.

GRIGGS BROS.,
May 8. 521 Monroe St., Toledo, Ohio.

TORONTO.—Never saw honey so well cleaned up as this season; there is little or none to get; some comb honey about yet, but extracted of No. 1 quality is about all gone.

E. GRAINGER & Co.,
May 10. Toronto, Can.

KANSAS CITY.—The market here is almost cleaned up on last year's honey. We doubt if any honey will be carried over this season. Best white is selling here to-day at \$3.25 per case; other grades from 25c to 50c per case less. We have received some letters that seem to indicate that new honey will begin to arrive within the next thirty days. Extracted is moving at 5½ to 6c.

May 20. C. C. CLEMONS & Co., Kansas City, Mo.

NEW YORK.—There is still some demand for comb honey, mostly for fancy stock, which is selling at 14 to 15; off grades in no demand, and prices are irregular—ranging from 8 to 12c, according to quality; sufficient supply to meet the demand. Extracted is in fair demand, mostly for California, of which there seems to be abundant supply of all grades. We quote white 6½ to 7c; light amber, 6; dark, 5 to 5½, according to quality and quantity. Beeswax scarce and firm at 29 to 31.

HILDRETH & SEGELKEN,
May 8. 82 Murray St., New York.

CINCINNATI.—The conditions of the market at the present time are not encouraging. Honey is offered from all sides at prices utterly regardless of the value of the article. At the same time, all indications point to an unusually good honey crop, which adds in making it a drag on the market. Offer amber extracted honey in barrels at 5 to 6½; fancy white, in crates of two 60-lb. cans at 6½ to 8½. We are paying 30c per lb., delivered here, for choice yellow beeswax.

THE FRED W. MUTH CO.,
May 8. 51 Walnut St., Cincinnati, O.

CHICAGO.—The supply of comb honey is small, and only choice is being asked for, which brings 15c per lb. No. 1, 14; off grades, about 10. White extracted, 6½ to 7; amber, 5½ to 6. Beeswax, 30.

R. A. BURNETT & Co.,
May 8. 199 South Water St., Chicago, Ill.

BUFFALO.—Our market is in about the same condition as it has been for some time. There is very little honey here, and a very good demand both for comb and extracted. This an excellent opportunity to close out all of the crop of 1905. We quote: No. 1 fancy white comb, 15 to 16; No. 2, white comb, 12 to 13; No. 1 buckwheat, comb, 12 to 13; No. 2 buckwheat, comb, 11 to 12. White extracted, 8 to 9; amber extracted, 7 to 8; dark extracted, 6 to 7. Beeswax, 30 to 32.

W. C. TOWNSEND,
April 24. Buffalo, N. Y.

PHILADELPHIA.—The season is so far advanced that there is not enough call for comb honey to fix a price. Some few lots are being sold at the best offers. We quote as follows: Extracted, fancy white, 7; amber, 5½ to 6. Beeswax, 29. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
May 9. 10 Vine St., Philadelphia, Pa.

ST. LOUIS.—Since our last there is better demand for comb honey; especially the better grades are scarce. We quote fancy white at 14; No. 1, 12½ to 13; amber, 11 to 12. Extracted honey is still dragging, and quotable as follows: California light amber, 6 to 6½, according to condition and quantity; Spanish needle, 6½ to 7; Southern, in barrels, 4¼ to 4½—in cans, 5 to 5½. Beeswax is lower, prime quotable at 29, and all impure and inferior at less.

R. HARTMANN & Co.,
May 11. 14 So. Second St., St. Louis, Mo.

DENVER.—Market on choice white comb honey is active; off grades and partly candied not wanted. We quote the following prices: Strictly No. 1 white, per case of 24 sections, \$3.30; off grades No. 1, \$3.00; No. 2 and partly candied, \$2.40 per case. Extracted, 6½ to 7 per lb. We are in the market for beeswax at 24c, delivered here, for average yellow wax.

THE COLORADO HONEY-PRODUCERS' ASS'N.,
May 10. Denver, Colo.

BEE-SUPPLIES.

We handle the finest bee-supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders. Let us figure with you on your wants.

MUTH SPECIAL DOVETAIL HIVES have a honey-board, warp-proof cover and bottom-board. Think of it. Same price as regular styles. Send for catalog.

The Fred W. Muth Company, Cincinnati, Ohio
51 Walnut Street

ATLANTA.—New honey beginning to move. Demand good at following prices. Fancy, 14 to 15c; A No. 1, 12 to 13. Extracted, white, in barrels, 6½ to 7; amber, 5½ to 6. Beeswax, 23 to 30. JUDSON HEARD & Co.,
May 10. Atlanta, Ga.

FOR SALE.—Fancy California light amber, in new 60-lb. cans, 6c; fancy water-white alfalfa, 7c; Wisconsin basswood in 250-lb. barrels, 7½c; sample, 8c.
E. R. PAHL & Co.,
Broadway and Detroit St., Milwaukee, Wis.

FOR SALE.—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts.
C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.
GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price.
JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
EVANS & TURNER, Columbus, Ohio.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.
THE A. I. ROOT CO., Medina, Ohio.

JELLY TUMBLERS AT REDUCED PRICES.

You can double your money from your honey crop by using Jelly Tumblers of correct style, as containers and keeping your market supplied. No other glass so economical. Write for quotations.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair,
St. Louis, 1904.



UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

POULTRY DOLLARS COME EASY.

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers every thing. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. "Three months' trial, 10 cts. **POULTRY SUCCESS CO., Springfield, Ohio.**

KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Egg-preserving formula, 25 cts.

T. T. POULTRY CO., Springfield, Ohio.

GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.

T. T. POULTRY CO., Springfield, Ohio.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

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Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY STATE

DATE..... If you want Gleanings discontinued at expiration, check here ()

At last! At last! At last!

Some of the readers of GLEANINGS may remember that, a year or two ago, a New York bee-keeper reported he had a method whereby he could foretell swarming without opening the hive; then nothing more was heard from him, and many wondered why; and it now transpires that sickness and a desire for further experimenting were the cause of his silence. Now he is ready to publish the result of his years of work in this direction, and the REVIEW is fortunate in securing the report for publication.

The April issue contains an illustration of his hive, and the arrangement whereby he can detect the build-

ing of cells. Not only does the inventor, Mr. Olmstead, show how he can detect the building of cells, but he explains how he has carried his plans still further, and is now able to rear a queen, have her fertilized, and take the place of the old queen, thereby preventing swarming, all without removing the supers, or opening or disturbing the brood-nest.

Send ten cents for this issue of the REVIEW, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.,

HERE'S YOUR CHANCE

to win a prize by doing a little work in
obtaining subscriptions for Gleanings
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)		Fourth Prize	3.00 queen
First Prize	\$10.00 queen	Fifth Prize	2.00 queen
Second Prize	7.50 queen	6th to 15th Prize.....	One cloth-bound A B C
Third Prize.....	5.00 queen	16th to 25th Prizes.....	One Junior Cornell smoke?

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

I can use sample copies of Gleanings. State.....

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	630	Appliances to Adopt if I were to Start Anew.....	655
STRAY STRAWS.....	639	Proper Color for Hives.....	655
EDITORIAL.....	641	Swarming not a Calamity but a Blessing.....	657
New Caucasian Bees.....	641	Uniting Weak Colonies by Alexander Method.....	658
What to Do in Bad Days in the Spring.....	641	Brief Notes on Current Topics.....	659
Queer Weather at Medina.....	641	Hoffman Frames.....	660
*Right and Wrong Way of Shaking Bees.....	641	Visit to Sam Ling's Bee-ranch.....	661
Three Methods of Swarm Control.....	641	Bee-keeping in Idaho.....	663
Foul-brood Law of Ontario Amended.....	641	The Pearl Agnes Bee-hive.....	665
Dr. C. C. Miller.....	642	Mailing and Introducing Cages for Queens.....	667
New System of Comb-honey Production.....	642	A YEAR'S WORK IN AN OUT-APIARY.....	652
Division-boards for "Springing" Bees.....	643	HEADS OF GRAIN.....	970
National Convention to be held at San Antonio.....	643	The Three-compartment Mating-box.....	670
Spraying while in Bloom.....	644	Good Combs Containing Sour Honey.....	670
Raw Nectar Wanted.....	644	Bees without a Hive for Years.....	670
GLEANINGS FROM THE PACIFIC COAST.....	645	Marbach Metal-spaced Frame.....	670
CONVERSATIONS WITH DOOLITTLE.....	646	Report on Hiving Swarms with a Mirror.....	671
BEE-KEEPING IN THE SOUTHWEST.....	647	Introducing Queens by the Simmons Plan.....	671
GENERAL CORRESPONDENCE.....	649	Hive-tool Made from a Saw blade.....	671
Producing Comb Honey.....	648	Bottom-board Having Adjustable Entrance.....	671
Foul Brood.....	650	OUR HOMES.....	672
Intensive Bee-keeping.....	651	NOTES OF TRAVEL.....	676
Over-weight Sections as an Advertising Scheme.....	654	TEMPERANCE.....	678
		SPECIAL NOTICES.....	699

INDEX TO ADVERTISEMENTS.

Banking by Mail.	Henry Shaffer.....	697	Household Specialties.	
Savings Dep. Bank Co.....	H. G. Quirin.....	694	Best Light Co.....	679
Bee Smokers.	H. C. Simpson.....	6-1	Cleveland Desk Co.....	679
T. F. Bingham.....	H. M. Parker, Jr.....	697	O. L. Chase.....	685
F. Danzenbaker.....	H. A. Ross.....	621	Joseph Horne Co.....	686
Bee Supplies.	H. H. Jepson.....	695-697	Stromberg-Carlson Tel Mfg Co.....	686
A. H. Reeves.....	J. W. Griffin.....	695	Incubators	
A. G. Woodman Co.....	J. I. Strong.....	696	Banta-Bender Mfg. Co.....	685
C. H. W. Weber.....	J. W. Taylor.....	694	H. M. Sheer Co.....	700
C. M. Scott & Co.....	J. W. K. Shaw & Co.....	695	Machinery	
D. Cooley.....	Jas. W. Bain.....	695	J. H. Barnes.....	686
F. C. Morrow.....	J. B. Case.....	696	Electric Wheel Co.....	700
Fred W. Muth Co.....	J. E. Chambers.....	691	Lyons Engine Co.....	684
Frank W. Prothero.....	J. R. Rambo.....	694	Medina Concrete Co.....	683
Geo. E. Hilton.....	John M. Davis.....	694	F. E. Myers & Bros.....	686
G. B. Lewis Co.....	Mennie & Fenton.....	691	Smith Premier Typewriter Co.....	685
I. J. Stringham.....	Malan Brothers.....	693	Miscellaneous.	
J. H. M. Cook.....	M. D. Whicher.....	696	Alabama Times.....	700
Kretschmer Mfg. Co.....	Robert B. McCain.....	696	Best Gate Co.....	681
Lathrop Mfg. Co.....	R. O. Cox.....	618	Compendium Subscription Ag'y.....	585
Leahy Mfg. Co.....	Roselawn Apiary.....	696	David B. Clarkson.....	679
Marshfield Mfg. Co.....	S. V. Reeves.....	693	Hammond's Slug-shot.....	683
Minnesota Bee Supply Co.....	S. Valentine.....	695	Hardware Specialty Co.....	700
M. H. Hunt & Son.....	The Jennie Atchley Co.....	597	Home Correspondence School.....	679
Page & Lyon.....	Victor-Knolle Apiary Co.....	697	Lathrop Mfg. Co.....	685
The Root Co.....	W. H. Laws.....	669	Loftis.....	680
The Root Co., Syracuse, N. Y.....	W. T. Lewis.....	693	Seaboard Air Line R. R.....	700
The Root Co., St. Paul, Minn.....	W. T. Crawford.....	695	Standard Incubator Co.....	603
W. T. Falconer Mfg. Co., Back Cover	Bee-books.		The Deming Co.....	682
Walter S. Pouder.....	A. J. Cook.....	690	W. R. Hartigen Son.....	686
W. D. Soper.....	George W. York.....	637	Publishers, Agricultural-paper.	
York Honey & Bee Supply Co.....	Buggies.		Farmer's Call.....	637
Bees and Queens.	Anderton Mfg. Co.....	652	Southern Fruit Grower.....	681
A. E. Titoff.....	Elkhart Carriage Co.....	682	Publishers, Bee-Journal	
Bee & Honey Co.....	Ohio Carriage Mfg. Co.....	682	A. I. Root Co.....	632-693
Best-the-bee man.....	Progressive Vehicle Mfg. Co.....	682	Geo. W. York & Co.....	637
B. C. Terry Co.....	Union Buggy Co.....	682	W. T. Falconer Mfg. Co., Back Cover	
Chas. Koepen.....			W. Z. Hutchinson.....	633
D. J. Blocher.....	Comb Foundation		Publishers, Poultry-paper.	
Daniel Wurth.....	Dadant & Son.....	Back Cover	R. R. Fisher.....	700
Doolittle & Clark.....	Gus Dittmer.....	688	B. H. Greider.....	700
E. A. Simmons.....	Fences.		The Poultry Gazette.....	700
B. C. Terry Co.....	Brown Fence and Wire Co.....	700	Poultry Item.....	700
E. L. Pratt.....	Coiled Spring Fence Co.....	697-700	Ohio Poultry Journal.....	700
E. E. Lawrence.....	Page Woven-wire Fence Co.....	682	Poultry Success.....	700
F. J. Colahan.....	Honey-buyers.		Seeds and Trees.	
F. A. Lockhart & Co.....	See page.....	680	Hart Pioneer Nurseries.....	683
George W. Barnes.....			Wants and Exchanges.	
G. Routzahn.....			See page.....	698-699
Grant Anderson.....				
Henry Alley.....				

ADVERTISING TALKS

BY THE AD. MAN.

Along about this time some advertisers—even the largest national advertisers—begin to talk about the coming dull season—the warm months in which people can not use their goods or will not buy them.

From the way most of these people receive an advertising proposition at this time of the year one would think that they sold only overcoats, fur gloves, or furnaces. Of course, there is such a thing as seasonable advertising. People will not buy seeds in mid-summer, nor will they buy heavy clothing; but they will buy household articles and many other things, perhaps more liberally than at any other season of the year. Do you not find that you spend just as much money in summer as in winter?

Now to get right down to business—GLEANINGS does not have a circulation in one State or in one clime. When our subscribers here in Ohio are busy harvesting, our readers on the other side are getting ready to plant. In fact, we offer spring, summer, fall, and winter circulation the year around. Remember—GLEANINGS goes around the world, and GLEANINGS ad's pay.

We do not know that any of our readers are contemplating the purchase of diamonds or jewelry; but should any thing in this line be needed it will be well worth your time to send for a copy of the catalog sent out by the Loftis Bros. & Co., 92-98 State Street, Chicago, Ill. These people issue one of the finest catalogs of jewelry we have ever seen. Every article is illustrated in a clear and careful way, and the catalog is a true testimonial of the character of this company. They offer any prospective purchaser an excellent opportunity to buy on the monthly-payment plan. The Loftis Company has been established since 1858; has a very high commercial rating, and was awarded the gold medal for their display of jewelry and diamonds at the World's Fair. They are recognized everywhere as honorable merchants who sell goods of quality.

We are glad to announce that the series of articles on "Control of Swarming for Comb-honey Production" which are just now running in GLEANINGS are proving exceedingly interesting to our readers. Our advertisers will appreciate our securing such interesting contributions. Any thing which we can do to make GLEANINGS a more instructive journal—a more valuable journal to the bee-keeper—will increase its value as an advertising medium. We have some of the best articles ever printed on bee matters, which will appear in our journal this year, and the outlook for a steady growth in our paid subscription-list is extremely favorable.

The Page Woven-Wire Fence Company, Adrian, Michigan, send out very interesting literature about their fences. Any one who buys fence should learn to what severe tests the Page fence has been subjected, and yet stood up as strongly as the manufacturers claim. Two

large factories are required to manufacture enough Page fence to supply the demand of fence-builders throughout the country. This in itself is a good reason why you should buy the Page.

New additions to the Poultry Offers column in the classified pages each issue. Here is a good place to be represented if you have poultry or eggs for sale. Hardly a bee-keeper who does not keep chickens; and because of their desire to make poultry pay as well as bees our poultry-men are the kind you want to do business with.

Put your poultry ad. in GLEANINGS. It will show up better here than in some paper with 1200 other poultry ads. Our special rate, three lines for 50 cents for one insertion, will hold good for a few more issues.

On page 679 of this issue we carry an ad. for the David B. Clarkson Company, 323-325 Dearborn Street, Chicago, Ill. This is one of the most remarkable companies we know of. The line of goods which they handle is books. Mr. Clarkson is at the head of the company, and has risen from the rank of a book-agent to the head of one of the leading book-selling establishments in the country. It would be almost impossible to tell you some of the great book bargains which are listed in the 65-page catalog which his company sends out. Just a few items which come to our notice are some of the leading copyright works, mostly fiction, at 38 to 50 cts., and a ten-volume encyclopedia, one of the most complete and comprehensive we have ever seen. We have already ordered two sets for our office, at \$7.75. This set of books is not a cheaply bound set, but put up in a very nice shape. It would be a prized addition to any library.

MARKETING TALKS.

Every bee-keeper who offers honey for sale in town or city should have some marketing name, some distinguishing feature for the honey he markets. If a certain brand of honey is tried and found to be good, a customer will be pretty sure to ask for the same kind when making the next purchase. This putting a name on your honey—a mark which will distinguish yours from the other kind—is an advertising plan, and a good one. It would also pay a honey-producer to have a small folder—just a slip of paper large enough to go into an envelope—prepared, telling about his apiary and facilities for making the pure kind of honey. People are being educated to a point where they want to know where the products they buy come from. A folder which would be very complete and educational would not be expensive. Put your name on each package of your honey. Give the dealer or store-keeper whom you sell your crop to a quantity of your pamphlets to give to his customers, and you will gradually feel a growing demand for your honey if it is the right quality; and the best honey is the only kind you can afford to market.

Root's Goods in Michigan!!

Our prices are identical with those of The Root Co. We carry several carloads their goods in stock—hives, sections, foundation, smokers. Every thing for bees.

We can save you time and freight expense in getting your supplies—and they are Root's goods, too.

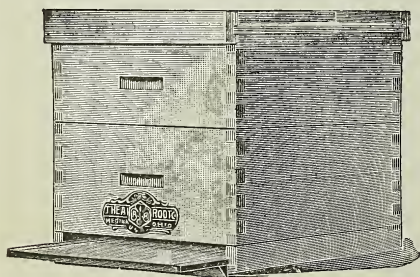
The Danz. hive—the comb-honey hive, is one of our specialties. We would like to tell you more about it if you are interested.

If you are just beginning with bees, we would like to mail you our booklet, "Outfits for beginners." Our catalog goes with it.

The goods you want now, you want "in a hurry." For Root's Goods "in a hurry" send to

M. H. HUNT & SON, BELL BRANCH, MICH.

DANZENBAKER HIVES



In this connection wish to say that my ten colonies (in Danzenbaker hives) wintered *perfectly* on summer stands with no other protection than a super of dry sawdust over them, and are building up nicely, although some of them covered only about three frames in the fall. *Score one for Danzenbaker hives.* (Signed)

JAMES M. SOWARDS, Pikeville, Ky.
May 10, 1906.

The Best
Comb-honey Hive
Made or Used

The Best
for Wintering
in Our Locality

THE A. I. ROOT CO., SYRACUSE, NEW YORK

Just Out!!!!**Dr. Miller's****New Edition!****"Forty Years Among the Bees"****What Some Say of "Forty Years"**

The more I read the more I am convinced it is one of the most practical books ever written. There are 101—yes, 1001—little kinks, little tricks of the trade, little ideas, and big ones too, which, while they may be old to some of the veterans, I am of the opinion will prove to be new and useful to the majority of them. The doctor has crowded into it his ripest experience; and not only that, he has drawn from the ideas of others so that we have the very latest and best in the way of practical information from one who has actually spent over "forty years among the bees."—*Gleanings in Bee Culture.*

In this the author goes briefly, but concisely, over his forty years of bee-keeping, for he has really kept bees for over forty years. Not only this, but he gives us a very delightfully written biographical sketch of his boyhood in Pennsylvania; his heroic struggles in securing an education, in which he boarded himself, cutting his weekly expense for board down to only thirty-five cents a week, which so affected his health that he has never fully recovered from it. I found this account of his early life so interesting that I read it aloud to the whole family. Most vividly did it recall my own boyhood days, in which I roamed the forest as free as the wild things in whose lives I became so interested. . . . I feel warranted in saying that it is the masterpiece of the author's over forty years among the bees.—*Bee-keepers' Review.*

AN APPENDIX added to this latest edition brings it right down to date; 344 pages; bound in beautiful cloth, gold lettered.

Price, postpaid, \$1.00; appendix alone, only 10c. (The appendix alone is specially for those who have the former edition, but any one can have it for the 10c, or *free* with the Weekly AMERICAN BEE JOURNAL for one year at \$1.00.)

We mail the complete book with the Weekly AMERICAN BEE JOURNAL one year—BOTH FOR ONLY \$1.80. Every reader of GLEANINGS should have both Dr. Miller's book and the Weekly Bee Journal. Sample copy of the latter sent free, or a "Trial Trip" of three months (13 copies) for 20c. But you'd better send \$1.80 NOW for the book, and the Bee Journal a whole year. It will pay you to do so.

George W. York & Co.

334 Dearborn St., Chicago, Illinois

Great Sale of Hives Sections, etc.

To reduce my stock I will sell No. 1 white polished sections at \$3.90; No. 2, \$3.40 (all sizes). Plain, 25c less per 1000. Best white-pine Dovetail hives, 8-frame, 1½ story, \$1.30; 10-frame, \$1.45. Great reduction in smokers, foundation, and all apianian supplies. 24-lb. shipping-cases, very nice, 13c; quart berry-baskets, \$2.75 per 1000. Send for free 24-page illustrated price list

W. D. Soper, Jackson, Mich. RD3.

65c for 25 NAMES—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years the Farmer's Call—regular subscription price, 40c a year. F. C. is a weekly, 25 years old; 1300 pages a year; sample free. Farmer's Call, Quincy, Ill.

WISCONSIN - BASSWOOD**FOR SECTIONS**

We make them and the very best of **Dove-tailed Hives, Shipping-cases**, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

Marshfield Manufacturing Company

Marshfield, Wisconsin

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

I. J. STRINGHAM

OF 105 PARK PLACE

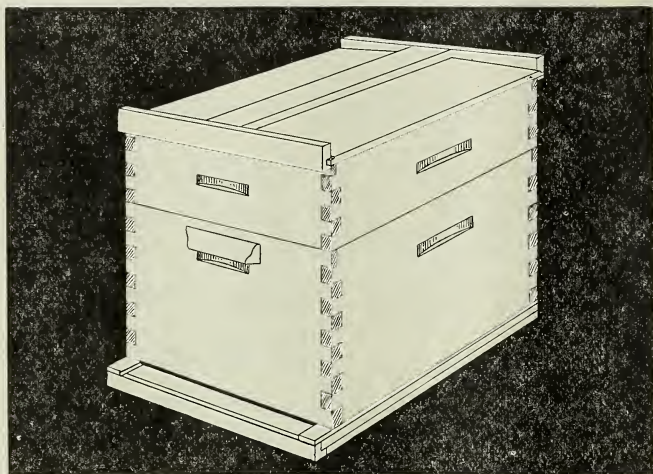
New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dov'd hive complete, \$8.75; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.25. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, \$1.00. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

IN THESE later days hive-making has become a science. It no longer means the nailing together of strips of wood. A hive is not a mere box. It is just as hard to make a perfect hive as it is to turn out a good piano, a wash-machine, a churn, or a practical incubator. The Lewis hive is the outcome of thirty years of hive study. It is so carefully and accurately made that you wonder that it **COSTS NO MORE THAN ANY OTHER STANDARD HIVE.**

There are thousands of these the best hives in the world—Lewis hives all ready for you at factory prices. By sending to your nearest dealer named below you can get them almost freight prepaid.



One-and-one-half-story Dovetailed Hive.

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 OREGON—The Chas. H. Lilly Co., Portland.
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Manufacturers Bee-keepers' Supplies
WATERTOWN, WIS., U. S. A.

GLEANINGS

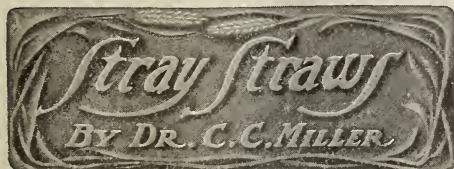
IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

MAY 15, 1906.

No 10



NAUGHTY G. M. Doolittle, to keep me in suspense two whole weeks without knowing what he is going to do with those frames of brood from which he has brushed the bees, page 597.

SOME GOOD POINTS are made by E. D. Townsend, page 580; but isn't it putting it rather strong to say that, when a hive is not full of bees, "that portion which is without bees is one of the dampest places one can imagine?"

J. G. BAUMGAERTNER asks, p. 581, whether spores of *Bacillus alvei* would not die in honey without brood to grow in. No, spores may live years in honey just as grains of wheat will live years without the proper soil in which to grow. [You are correct, doctor, and I am glad you drew attention to it, as I overlooked the point.—ED.]

FOUNDATION SPLINTS are spoken of as sawed, page 564. The first you made were sawed, but I was under the impression that all since then were sliced. [No. We talked about slicing the splints, but never made a success of it; the knife was too much inclined to follow the grain of the wood, making an irregular splint.—ED.]

W. R. GILBERT, p. 575, advises, when a swarm issues from a colony that is storing, to put the swarm on old stand, and the stump, or mother colony, on a new place. An improvement would be to place the stump close beside the swarm, and move to a new place a week later. That would make an

increase of 14,000 bees in the swarm, supposing the queen had previously been laying 2000 eggs a day.

YE EDITOR asks, p. 579, "Did you not tell me once that your unpainted hives would last as long as you lived?" I hardly think I said so, for I didn't think so; but even if I had said so, would there be any less truth in saying, "One of the reasons I don't paint hives is because of the possibility that at any time I may want to change to something better?"

BASSWOOD SEEDLINGS by the thousand have again come up this spring under my basswood-trees, as every spring, only to disappear the following spring. I do wonder why. No, they are not grazed down, they just disappear. [I think you will find that those seedlings are usually choked by the grass; but if you cut them out with a case-knife and reset them in soft rich mellow earth shaded by themselves you will find that they will grow all right. We do that here, and are fairly successful.—ED.]

COMPARING plain and beeway sections. Mr. Editor, page 579, you say I overlook the important consideration that the naughty corners "lessen the actual beeway by almost $1\frac{1}{2}$ inches." No, I give that its full weight, and now emphasize it by saying that the passageway is $\frac{3}{8}$ closed. But I don't quite see that that has any thing to do with the case in question. As I said, "Keep in mind that Mr. Crane accounts for a difference in results by the fact that the bees can more readily get at all the edges of the comb in plain sections." No matter how much harm those naughty corners may do in any other direction, the fact remains that they hinder the bees from getting at only $\frac{1}{8}$ of the edges of the comb, and that was the only point under consideration. [But this $\frac{1}{8}$ is at a point where it will do considerable harm. It is not so much the difference in the relative amount as where that relative

difference is located. As I tried to explain, half an inch added to your ample girth would not make so much difference as half an inch added to the end of your nose.—ED.]

I DON'T KNOW why a side entrance should be more unfavorable for wintering than a central entrance, p. 568; but here's a guess at a thing that might make quite a little difference. The central entrance is likely to be nearer the brood-nest, and so there is likely to be a little more change of air than with the side entrance. [Your suggestion is pretty nearly the correct solution. In a private letter received from Allen Latham, who has given this matter considerable study, he inclines to the same opinion. In this issue you will see what Mr. A. K. Ferris has to say on the subject of bees clustering over entrances; and this general tendency shows that they do it for a purpose; and this purpose is, doubtless, to get better air and to allow the moisture to escape more directly.—ED.]

M. E. TRIBBLE is accused of being afraid of bees because he has his veil on while the other veils are lifted, p. 585. Not the right reason. Mr. Tribble can see all right without taking off his veil, because it is black. The others can not see well through their light-colored veils. [M. E. Tribble being accused of being afraid of bees? Read the text again, p. 585, and you will see that that was just the very thing he was *not* accused of doing. But you are correct when you surmise that those with *white* veils were compelled to raise them for the simple reason they could not see with them on. Quite by accident last summer I happened to try a white veil in comparison with a black one. The only merit of the former is cheapness, and it is a question with me whether we ought not to take it out of the catalog.—ED.]

IT WAS A PUZZLE to me to understand why Mr. Doolittle should put an empty hive over his colonies, May 20, p. 522. It would seem much warmer to put the empty hive under. Possibly the key to the puzzle may be found in the views expressed by him in *American Bee Journal*, p. 364, that the crust of bees is almost a complete protection against the escape of heat. He says, "The bees are almost independent of the hive, only so far as it gives them protection from their enemies and the winds and storms." That sounds like heresy; but he gives some good proof for it, and I suspect that he is nearer the truth than the rest of us. But I am not quite prepared to go as far as he does when he says "the heat from the cluster is not allowed to pass up into an upper hive, at any time when that heat is needed for the brood within the cluster of bees."

YE EDITOR uses the word "shooking," p. 568. That's an improvement. Better coin a new verb, *shook*, *shooking*, *shooked*, than to have bee-keepers appear such a set of ignoramuses that they don't know the correct form of the past participle of *shake*. [The word "shook," as an adjective derived from a verb describing a certain kind of ar-

tificial swarm, has become] so thoroughly engrafted into the nomenclature of bee-keepers that it seems utterly impossible to choke it out of literature; so GLEANINGS has decided to allow the use of the descriptive word when applied to swarms either shaken or brushed. But, on my word, I did not think you would sanction the term "shooked" swarming. Seriously, doctor, I am not worrying that bee-keepers will appear as a set of "ignoramuses" who do not know the English language. It is the editor and publisher that would have to suffer if any. I am willing to take my chances.—ED.]

INTERESTING to learn from Dr. Boelte, p. 590, that the *same* bees make repeated trips to the water. I don't believe he will find that they are nurse bees, but a special detail of field bees. I wonder if pollen-carriers are not divided off the same way. Wait a minute. . . . Just been out watching at a hive. About one bee in three is carrying pollen. Each bee has a big load or it hasn't any. Of course, the proportion of pollen-gatherers varies greatly; but there is always the sharp distinction between carriers and non-carriers. [To-day, May 5, I noticed there was not one in 500 that carried pollen, and this is accounted for by the fact that the other bees were gathering nectar from fruit-bloom. Bees are provident. They will gather pollen when they can not get any thing else. It seems to be their nature to store a little ahead; and when nectar comes in they will spend all their energies in the storage of honey. When that is not to be had and pollen is available they will lay by a store of it.—ED.]

"IS IT NOT A FACT that, the older we grow, the less inclined we are to adopt new devices?" So ye editor, p. 579. Y—e—es, as a general rule. As years advance, interest gradually fades in all directions. The cooking of to-day is not up to what mother's cooking used to be. Old ways are better, and any deviation from the old way is looked upon with suspicion. But are not bee-keepers an exception to the general rule? To-day I was out looking at the bees' busy on the dandelions and plum-blossoms. I think I watched them with just as keen interest as I did 45 years ago. I think I take just as keen interest now in studying up something new as I did then. My assistant complains bitterly at my wanting to try so many new things that may interfere with the honey crop. A queen-cage that a certain old foggy editor still retains I have cast aside for something new, and many a half-hour is spent studying over some new plan. No, it is hardly a fact that, the older he grows, the less inclined the genuine bee-keeper is to adopt new devices. [I began active bee-keeping in our yards, and to study bee-journals, when I was 14. I am now nearly 44. During these 30 years I have had an opportunity to study bee-keepers both at Medina and those in various parts of the country, coming into face-to-face contact with them, and if I am any judge your last sentence is hardly in harmony with the facts. Bee-

keeping is not so much different from any other profession or business that it will change the natural tendency in human nature to grow conservative with years. This is a proposition that we can hardly gainsay. I am not an old man by considerable; but I find myself becoming more and more skeptical in regard to the value of new things. You may not think it; but if you could see the number of things I turn down, and the way some of my friends complain of how I pour cold water on some of their inventions that never see the printed page, you would begin to think that, from their standpoint at least, I was getting to be an old fogey. The time was, perhaps, when I was ready to nibble at nearly every bait that came along; but I hope I am not quite so easy as that now. So you see I can't help judging you by myself; and, honest, now, don't you find yourself clinging to the old true and tried more than you once did? Peer again into the archives of memory. —ED.]



THE conditions in Texas thus far have not been reassuring for bees, there having been so much rain. How this will affect the attendance at the National convention to be held in San Antonio I can not say. It is to be hoped that conditions will soon change for the better.

THE NEW CAUCASIAN BEES.

THE reader will, no doubt, be interested in knowing what our senior editor has to say in regard to this new race of bees in this issue, p. 676, as he tested them on an island off the west coast of Florida. Let it be understood that we have no Caucasians for sale, and probably shall not have this season. We are testing them carefully on the island, and may test a few queens in an isolated locality near Medina. There are comparatively few bees of this race in the country, and those we may be able to raise we prefer to keep only for testing.

WHAT TO DO ON BAD DAYS IN THE SPRING.

THERE will be bad days during this month when bee-keepers will not be able to do very much work with their bees. It will be a good time to scrape off bottom-boards, clean propolis out of hive-rabbets, scrape and clean all brood-frames containing good sound combs. From a sanitary point of view this may pay a big dividend—especially if foul or black brood should be lurking in the vicinity. In addition to the scraping and general

housecleaning of the hive it would be well to wash them out with a strong solution of carbolic acid. Buy a bottle of carbolic-acid crystals at the drugstore, and make a solution of one in fifty. This should be strong enough to take the skin off the hands. But be careful to apply the liquid with a broom, paint-brush, or swab.

QUEER WEATHER AT MEDINA.

THE beautiful month of April was followed by a cold spell. The same is now on at this writing, and great flakes of snow are falling. The atmosphere is chilly, notwithstanding there is a profusion of fruit-bloom. This is our luck. Whenever fruit-trees are in bloom it usually happens that it turns cold. Our proximity to Lake Erie probably accounts in a large measure for this, for local conditions if not general.

Later.—The sun is shining out of a clear sky, and we are happy again. No knowing what the next hour will bring.

RIGHT AND WRONG WAY OF SHAKING BEES IN SHOOK SWARMING.

ATTENTION is drawn to Doolittle's method of shaking the bees. Observe that he stands *in the rear*, not in the front, of the hive as perhaps a majority of bee-keepers do. He thus avoids bees crawling all over the shoes, up the stockings, and under the pants legs, and at the same time avoids stepping on the bees. Also note his plan of holding the frame just prior to the sharp jar to dislodge the bees.

Doolittle's series of articles on managing an out-apiary contains a lot of other valuable hints; and I especially recommend our readers to go over very carefully every paragraph of the series. Unless you do you may miss something valuable that will mean dollars to you before the season is up.

Mr. Doolittle has been gathering together a lot of ideas and practices which he has now incorporated in one continuous series of articles that may ultimately be put in book form. Like Mr. Alexander, he has been a constant worker with bees for a period of thirty years, and has now given us the fruit of his ripe experience.

THE THREE METHODS OF SWARM CONTROL ALREADY GIVEN AND TO BE GIVEN IN GLEANINGS.

IT is somewhat remarkable, but three men for a few years back, each independently of the other, and without any knowledge of what the others were doing, have been working on non-swarming systems—systems whereby comb honey can be produced without the bother and worry of swarms. Both Mr. Doolittle and Mr. A. K. Ferris have been working on a *system*, while Mr. Aspinwall has devoted all his energies to a *hive*. All three of the men feel that they have solved the problem, and it only remains to be seen if others can solve it by following their directions. The Doolittle system does not require any change in

hives, for it is specially well adapted to use with any Langstroth eight or ten frame hive. The Ferris is based on the combination of a hive and system.

THE dandelion is unusually profuse in our locality. While it is in a sense a bee-plant, it is a real pest on our lawns. We never saw so much yellow on our lawns as now.

THIS promises to be an exceptionally favorable fruit-blooming season. The peculiar spring held back the trees until warm balmy weather, and the bees are reveling on honey and pollen in a way they have not done before for years.

MR. W. K. MORRISON, well known to our readers, formerly of Bermuda, then of Barbados, Trinidad, South America, Porto Rico, and now of New York city, is visiting us at the present time. No man among modern bee-keepers knows more about bee-keepers in the tropics than does he.

THE remains of Mrs. Lucinda Harrison, who used to write for the columns of GLEANINGS, have been brought back to her home in Peoria, Ill. They have been laid to rest by the side of her husband. Mrs. Harrison had a bright and sparkling way of writing that interested as well as instructed.

FOR a number of years bee-yards in the neighborhood of the big smelting-works in and about Denver have suffered considerable damage by reason of the sulphurous smoke killing the vegetation for miles around. I have just seen by the papers that three of the big smelting companies have paid to the local bee-keepers the sum of \$1500 apiece. Perhaps some of our subscribers in the vicinity can give us the actual facts.

LANGSTROTH.

WE have received a poem from the poet laureate of beedom, Eugene Secor, of Forest City, Ia., entitled "Langstroth." This we hope to place before our readers soon. Perhaps no man in all beedom was more reviled, and suffered more from mud-flinging, than that great and good man at a time when he was giving to bee keeping an impetus forward, the like of which no other man ever gave.

FERTILIZING QUEENS IN A MAMMOTH TENT
CONSTRUCTED AFTER THE DESIGNS OF
MR. J. S. DAVITT, OF ARAGON, GA.

MR. C. M. CHURCH, of Arnold, Pa., is already constructing a mammoth mating-tent for mating queens in confinement on the plan laid down by Mr. J. S. Davitt, which he described in the *Bee-keepers' Review* for 1901, and which was given later in these columns. Mr. Church feels very enthusiastic about the success of the experiment. So sure is he that it will work he is willing to stand the investment. This will be tested during the coming season, and it is need-

less to say that we have made arrangements with Mr. Church to give the results of his experiment in these columns, whether it is a success or failure.

If the thing works out well, Mr. Church will deserve the thanks of the bee-keeping fraternity at large, because it will then be possible to mate queens to hand picked drones, and inbreed—something that is impracticable at the present time.

DENATURED ALCOHOL.

IT begins to look now as if the bill to permit the manufacture of denatured alcohol free of government tax would go through. Write to your United States Senator, urging his support.

This is one of the most important measures ever brought before our national Senate. If it passes, it will mean a cheap light and cheap fuel, and a most powerful competitor to gasoline and kerosene.

A good deal of the cheap unsalable honey, such as honey-dew, could be converted into this new product, denatured alcohol.

THE FOUL-BROOD LAW OF ONTARIO, CANADA, AMENDED.

VERY meager information comes, to the effect that the foul-brood law of Ontario, Canada—the first legislation that was ever enacted against the disease known as foul brood—has been amended, removing the appointment of the inspector from the Ontario Bee-keepers' Association to the Minister of Agriculture. It is now provided that he may appoint more than one inspector if it appears that one man will not be able to compass the entire province.

Conflicting reports have come from time to time from Canada, one side alleging that it is simply impossible for one man to go over the entire territory, and the other alleging that one inspector could do all the work at a considerable saving in expense.

I know very little about the merits of the controversy; but somehow it rather seems that the Ontario Bee-keepers' Association will know better who is fitted to make inspections of bees than the Minister of Agriculture, who probably would know very little about the bee business. But if the Minister will accept the recommendations made by the Ontario Association, or any other accredited body of bee-keepers, then there need be no fears entertained that an incompetent man or men will be appointed to this responsible work.

DR. C. C. MILLER.

IT is with more than ordinary pleasure that I introduce to our readers Dr. C. C. Miller—see outside cover page. Although we have shown his portrait in our columns before, Mrs. A. I. Root particularly requested that we place him in our gallery of celebrities.

It is scarcely necessary to tell who the doctor is, and what he has done for bee cul-

ture, for hardly any reader of a bee-paper can fail to know him. Perhaps no man who has ever written on bees has scanned more pages of bee literature in the English and foreign languages than the man from Marengo. In his regular department of Stray Straws he gives us the benefit of his wide reading, and his over forty years of actual experience in the bee-yard.

His style of writing is as instructive as it is pleasing; and after you have read him you begin to know him as a near and dear friend; and although he has passed his three-score and ten by just five years, he seems to have a young heart, and an enthusiasm for his chosen pursuit that almost equals that of a beginner in bee-keeping.

Dr. Miller is the author of the book "Forty Years Among the Bees," one of the best treatises that has ever been published. It is filled with illustrations—in fact, is full of good things told in such an entertaining way that the book reads more like a racy novel than a mere text-book.

I am sure I am voicing the wish of thousands of our readers who will say with one accord, "Long live the man who gathers up the Stray Straws!"

DIVISION-BOARDS FOR "SPRINGING" BEES.

The ordinary single-thickness boards or followers have the same outside dimensions as the brood-frames—that is, there is a bee-space all around them—top, bottom, and ends. When I visited Mr. Julius Hoffman, fifteen years ago this summer, he was using a division-board that had rubber strips nailed on the bottom and end edges. This rubber was about $\frac{1}{8}$ inch thick, and wide enough to reach across the gap of the bee-space when nailed on the sides of the board. When the board was shoved down into the hive the rubber edges came in contact with the ends and bottom of the hive, making a close *tight* fit. If the bees glued the rubber to the hive it was so yielding it would readily let go.

I remember that Mr. Hoffman emphasized the importance of having a brood-nest in the spring just large enough to accommodate the cluster of bees; and this brood-nest, he said, should be completely shut off from the rest of the hive, so there could be no place for air currents to circulate from the unused part of the hive into the warm part occupied by bees and brood.

Nearly thirty years ago A. I. Root made what he called his chaff division-board. This was two inches thick, double-walled, having the ends and bottoms cushioned with a padding of chaff and canvas, the inner walls being filled with chaff. These answered the same purpose as the division-board by Julius Hoffman, but were better in that they were thicker. They also answered the purpose of dummies. A couple of them would fill up the space completely, usually occupied by four frames.

We have been selling these boards all these years; but I suspect bee-keepers generally have never quite attached all the im-

portance they should to the value of a contracted brood-nest *completely* shut off from the rest of the hive in spring brood-rearing; and I do not know but it would be a good idea for us to go back to some of the original principles. While we can not use artificial heat in the spring, we can do a great deal to conserve the natural heat that would otherwise go to waste.

The ordinary followers or division-boards commonly sent out with hive combinations can be made close-fitting in the same manner that the Julius Hoffman boards were made. But as rubber is getting to be quite expensive, some good strong roofing material like rubberoid, magnesia, or asbestos roofing cut up into strips, would answer as excellent substitutes. These should be tacked on the edges of the board, sticking out just far enough to little more than fill up the bee-space gap. I would go further and nail the strip on the top edge also, and thus completely shut off the brood-compartment of the hive from the empty unused space through which a great deal of the warm air will escape.

In some localities this suggestion may not be too late, even this season; and even if it is, "paste it in your hat" ready for use this fall, winter, or next spring.

The value of such a board would be that one could have two colonies or nuclei in one brood-nest. A tight-fitting division-board all around would make this perfectly feasible. Mr. A. K. Ferris has already shown the importance of this in two of his introductory articles explaining his system of comb-honey production and swarm control.

THE NATIONAL CONVENTION TO BE HELD AT SAN ANTONIO, TEXAS, NOV. 8, 9, 10.

THE Executive Committee have finally decided on holding the next meeting of the National at San Antonio, Texas, Nov. 8, 9, 10. San Antonio, as is probably well known, is in the heart of some of the finest bee country in the world. There are extensive bee-keepers in the vicinity, whose crops run up into the many thousands of pounds; and, strategically, this will be a place where, I imagine, the local attendance will be as large as if not larger than any previous meeting ever held in the history of the Association. Low railroad rates will be offered for several hundred miles out of San Antonio, and at the same time there will be home-seekers' rates available from all parts of the country. These rates will be exceptionally low—almost as low as the cent-a-mile trip to the G. A. R. place of meeting, which will be this year at Minneapolis.

I have understood that the Executive Committee have been considering the two points. For a time they thought they would go to Minneapolis on account of the low railroad rates; but Director Udo Toepperwein exerted himself to a point whereby San Antonio practically meets all competition and now secures the convention. This will give bee-keepers in the North, who desire it, an op-

portunity to see this great country for bees, of which they have heard so much. Further announcements will doubtless be given.

SPRAYING IN BLOOM; IS THE PRACTICE HARMFUL TO THE BLOSSOMS AS WELL AS TO THE BEES?

QUITE a number of our subscribers, as, indeed, they do every spring, have been sending in circulars from a manufacturer of spraying outfits in which it is strongly urged to spray the trees while in bloom, or, perhaps, more exactly, just as the petals begin to shed. Protests have been made by bee-keepers from all over the country, because it is understood this concern is doing a large business, and the literature that it has been sending out broadcast, it has been alleged, has been doing considerable damage to the bee-keeping interests. In this circular matter testimonials are given, going to show that it is an advantage to spray while in bloom; but these come mainly from men, I judge, who are not discriminating, and who are in no sense prepared to pass an impartial judgment as would the carefully trained scientific men who have charge of the work at the experiment stations scattered all over the country.

At the present time I do not know of a single station that recommends spraying trees while in bloom. If I am not mistaken they universally agree that it is a damage to the bee-keeping industry, and, if not actually hurtful to the blossoms themselves, it is a waste of time and material and a positive damage to the bee-keeping interests. The stations say that just as good results can be obtained *after* the blossoms have fallen, and that, too, without injury to the bees. In spite of this, this concern has been putting out this advice year after year.

It is not fair to state that they claim the bees will not be killed *if their directions are followed*. They recommend reducing the strength of the mixture while the trees are in bloom, and applying it only just when the bloom begins to fall. We have no desire to do this company any injustice, and should be pleased to receive reports from those bee-keepers who are located in the vicinity of fruit-orchards sprayed according to these directions.

New York, as well as some other States, has rigid laws against spraying trees while in bloom; and these laws, as I happen to know, are based on information furnished by two of the best experiment stations in the United States, one of them being located at Ithaca, N. Y. It is no doubt true that other States will now follow suit very soon.

I would respectfully suggest to all bee-keepers' associations that they take this matter under consideration, and appoint committees who will not only see members of the legislature, but see to it that a bill is framed, and finally enacted into law. We know that thousands of colonies have been injured by this practice of spraying in bloom. Every year our queen-rearing yards are made to suffer on account of the ignorance

of the local farmers. As we have no law in Ohio against spraying while in bloom we have to stand and take it. As it was, our \$200 queen — a queen that we would to-day give a thousand dollars for three months old, was killed during fruit-bloom. The brood died in her hive at the time, and the good queen herself finally was found dead out in front of the entrance, as were other queens. As soon as the spraying season was over, all trouble stopped.

RAW NECTAR WANTED; A HERESY CORRECTED.

MR. W. A. SELSER, of No. 10 Vine St., Philadelphia, Pa., who has devoted not a little of his time to analytical chemistry, especially that phase which relates to the composition of honey, desires me to say that he will pay \$5.00 or \$10.00 or even more, if necessary, for a sample three-ounce bottle of pure raw nectar — that is, the nectar from any blossoms before it has been gathered by the bees. If only a single ounce can be procured he will pay liberally for that, as he might be able to obtain a like amount from others.

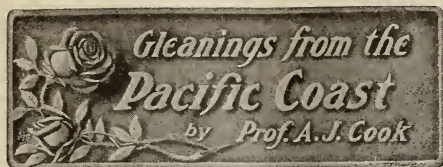
There is a possibility that some bee-keepers are located in a vicinity where nectar from flowers is secreted so abundantly that it can be gathered by hand. Something over 25 years ago I remember my father gathering one morning from the spider-plant quite a quantity of nectar with a teaspoon. Great drops of the sweetness would collect where the plants were covered, and finally drop down on to the ground. Those who may be in position to obtain the raw nectar in this way would do well to correspond with Mr. Selser direct.

He has been analyzing sugar syrup fed to bees, of different degrees of density, and feels satisfied that he can now detect any sweet substance fed by man to bees in honey.

The impression has gone abroad that sugar syrup fed thin, and slowly ripened by bees, and sealed, is, to all intents and purposes, honey, because it has been argued that the nectar of flowers, and sugar from the beet or cane, when greatly diluted with water, are one and the same thing chemically; that when either one of them is subjected to the same treatment of ripening by the bees that either one will be honey, one just as much as the other.

Mr. Selser is prepared to prove that this is not true. He is satisfied that he or any good chemist can prove unerringly the difference between sugar-fed honey and that produced entirely from the flowers; yet he wishes to secure additional evidence by getting a sample of raw nectar that he *knows* to be the simon-pure article. It is, perhaps, unnecessary to state that Mr. Selser could not be fooled by sending him a sample of thin sugar syrup with the representation that it was nectar.

We will shortly publish an article from Mr. Selser that will go into this matter more fully.



ORDERS OF INSECTS.

We study animals with more interest than we do plants, and man with decidedly more avidity than any of the lower animals; and so of all insects none awaken the same enthusiasm from the student of zoology as do the highest, the order of the ants, wasps, and bees. These, from their wondrous habits, their equally exceptional anatomy and physiology, and their marvelous instincts, have always awakened the profound admiration of all students of this department of natural history. This order is known to science as

HYMENOPTERA.

These insects, except those like the worker ants, which are wingless, possess four membranous wings, and hence the name *Hymenoptera*, which means membranous wings. We have seen that the *Diptera* have membranous wings, but only two. The mouth-parts of the *Hymenoptera* are of the biting or mandibulate type, though in some the under lip, or labium, is modified into a most perfect tongue or sucking organ, as exemplified in the higher bees; yet all have the well developed normal mandibles, or jaws. We who have studied bees or wasps or ants are well aware of the strong jaws which move sidewise, and, upon occasion, as seen in the ants, can do good execution. The *Xylocopa*, or "carpenter bees," use these strong jaws to bore the large smooth holes in wood, as do some species of ants, which serve for nests or the home.

The transformations of the *Hymenoptera*, as we should expect, are very complete. In almost all the higher forms, the larvæ are footless and often absolutely helpless, and so are nursed and cared for as carefully and tenderly as are the equally dependent infants of our own kind. This is obviously a high development; for the time of adolescence is a most trying one, and so to be shut away from danger and cared for by the mature and stronger ones is a signal advantage. No bee, wasp, or ant is exposed to the rough usage of the world until full maturity, and thus have a unique history, an early good fortune, not possessed by even our own kind. No law against the "employment of children" is ever called for in the ant, wasp, or bee world. "'Tis a lesson we should heed."

POLLINATOR.

The insects of this order do a tremendous good to man in pollinating our plants. No plant can bear seed unless pollinated. Many, most, will not fruit at all unless seeds are produced. A large number will not seed

with their own pollen. They must be cross-pollinated. To these many of our most valued fruits and vegetables belong. We say these are sterile to their own pollen. Bees are pre-eminently the agents of this cross-pollination. We may announce, then, that these insects are chief among the world's philanthropists, if, as we believe, philanthropy means working for the good of others. Even our clover, the most important single plant, I believe, is absolutely dependent on bees for its seed, and so for its perpetuity. So must we not all say, God be praised for the bees?

PARASITES.

It is in this order also that we find the greatest number and most important insect parasites. True, as we have seen, the tachina flies do great food in this role; yet here we have four large families that are almost exclusively parasitic. Many of these are very minute, and of metallic colors, so that, when viewed with the microscope, they are of exceeding brilliancy and beauty. Of such are the myriad chalcid flies, which do incomparable good in destroying our worst insect foes. Their interesting work is as follows: The mature chalcid, or ichneumon fly, lays its one or more (usually more) sometimes even scores of eggs, in some luckless grub or caterpillar, or other insect larva. These soon hatch, when the little larvæ find in their victim both home and food. They find in their home a veritable banquet of tender insect steak, and are not slow to feast on it, unmindful of the agony of the fated victim. Thus our crops are often generally saved by these other benefactors of our human kind. It is certain that, without these hymenopterous parasites, agriculture would be impossible. In California these parasites have been introduced from foreign countries to the immense profit of the fruit-growers.

MIMICRY.

By mimicry we mean the development of resemblances that serve, may be save, their possessor. Bees and wasps are armed, as we all know, with a very powerful and venomous sting which they are not slow to use upon occasion. This saves them from the onslaught of birds or other predatory insects. Many other insects, like flies and moths, mimic these bees and wasps in a wondrous fashion. In such cases the mimicking and the mimicked usually fly at the same time of day and year, and are lured to the same locations. This mimicry doubtless serves to protect the mimicking forms. The bird, hungry and eager, mistakes the fly or moth for a wasp or bee, and hastens by, when otherwise it would halt for a fly or moth banquet.

GALLS.

All have seen the oak-apples, or galls, which, though not confined to oak-trees, are very numerous on many species of oak. While some maggots, some plant-lice or aphids, etc., form galls, yet most galls are caused by the *Cynips*, a family of *Hymenop-*

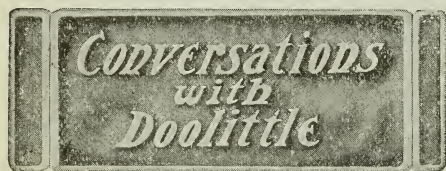
tera. These short, usually black, wasp-like hymenopterons, lay an egg on leaf or twig, and at the same time poison the tissue, so that an extra flow of sap and extra growth occurs, and thus we have the galls. These galls serve the larvæ that hatch from the eggs both as home and food. The galls are excessively bitter, so that they are usually unmolested by other animals. The inchoate gall-insect, like the beer-guzzler, is fond of bitter, and thrives on the juice of the gall. One gall-fly attacks the rose. Often the galls are very beautiful. The spines on some galls are simply the magnified hairs of the old leaves or twigs. An extract from galls is used in commerce, and forms a valuable part of most indelible inks.

ECONOMICALLY IMPORTANT.

Next to silk, no product from insects compares with that from our honey-bees in value to man. I need not say to the readers of GLEANINGS that honey and wax are very valuable in commerce. While bees are far more valuable as pollinators, yet the carloads of honey and this carbohydrate food, par excellence, should make us repeat our "God be praised for the bees."

PREDACEOUS INSECTS.

These rank in importance with parasites. They pounce on their victim as the cat does on the mouse, and he is no more. The many families of wasps are all predaceous, and, like the lady-bird beetles, the predaceous bugs, the lace-wings, and the robber-flies, they do incalculable good. We may say, then, without question, that all wasps are our good friends. If undisturbed they rarely sting, and they are ever doing us immeasurable good.



EARLY QUEENS.

"Hello, Doolittle! Started to raise any queens yet?"

"No, Mr. Howell, I have not. Have you?"

"No; but I thought perhaps you had."

"How should you thus think, when you, living in Orange Co., much further south than this cold part of Onondaga Co., have made no attempt in the matter as yet. We had a big freeze last night, and it has been cold all the last half of April—so cold that the bees could get out but very little. I hope with day after to-morrow, the first of May, it may warm up so that the bees may have a better chance to prosper."

"Your weather has been a little colder than it has been with us, evidently; but I did not know but you had some means of

rearing early queens in a cold spring, so I came up to talk the matter over with you."

"I shall be glad to talk the matter over with you, and to begin I will say that no good generally comes in trying to rear too early queens. In the first place, the queens reared so early that there are few young bees in the hives are not much good themselves. Next, there has been many a good colony brought to the condition of 'no good' by trying to raise queens with the old bees which came out of winter quarters, though strong in numbers, and the labor performed with these colonies was no good, because it was worse than thrown away by heading colonies with these no good queens, only to result in the loss of honey, time, and patience, later on."

"That is a dark picture you are presenting, I am sure. I do not want poor queens; but I do want to know the very earliest date on which I can raise queens and have them good."

"My first commencing every year is at about the time the apple-trees commence to blossom, and I always go slow even then, for some years the bees do not get as well advanced as at others. Some years I can get as good queens reared in apple-bloom as at any other time of year. In other years a cold spell strikes us when apple is in bloom; and where this is so, it is uphill business trying to raise queens, no matter how much you lavish on them by way of feed, extra care, etc."

"How long before white clover blooms does the apple-blossom open in your locality?"

"Usually from 20 to 25 days. Apple-bloom opens from the 20th to the 30th of May, and the clover opens from the 15th to the 20th of June; but it is generally the last-named date before the bees secure any honey from the clover bloom."

"Can it be possible that you are so much later than we are? Clover begins to open with us by the last week in May; and by the end of the first week in June it is in full bloom."

"It would seem that you are nearly if not quite three weeks earlier than we are; and if that is so, you should be able to commence to rear queens from the 5th to the 10th of May."

"Will that be early enough to give me queens for use in making colonies by the Alexander plan the first week in June?"

"Yes, I think so—that is, if you use your queens as soon as they begin to lay. Would you wish to do this?"

"As soon as they are laying well they would answer my purpose as well as any thing, for I am working my bees wholly for honey. How long from the time of starting the cells to the time the queen begins to lay?"

"I generally figure from 20 to 22 days. By using larger larvæ this could be shortened a little; but it is not advisable to do this, as queens from larvæ two or three days old are not so long-lived as those from younger larvæ."

"How old should the larvæ be when using in transferring them to prepared queen-cups?"

"I generally use those not more than 24 hours old, and more often not over 18 hours."

"I should think it would be hard to see and handle such small things."

"In doing this I use quite strong glasses, so that what appears to the naked eye as almost too small to see looks quite large through the glasses, so that I am enabled to do fully as good work with these 18-hour-old larvæ as I can with two-day-old larvæ with the naked eye."

"That is a new thought, and something which I think will be a help to me. But in using these 18-hour-old larvæ, about what time will the queens emerge?"

"A little later than just 11 days of 24 hours each from the date you transferred them, if every thing is right for the most perfect development of queens. If I should say 11 days and from 6 to 10 hours, I should be pretty near the truth; but I generally remove the cells from the cell-building colony near evening of the tenth day; for if I wait till the eleventh day something is quite sure to transpire by way of bad weather, or some unforeseen thing, to prevent my doing as I would, so the matter is put off till a young queen or two will emerge, when I am caused the trouble of hunting those queens out from a mass of bees, or run the chance of losing them, or a 'botheration' which may arise later, through these young queens having their liberty."

"How long after the queen emerges before she begins to lay?"

"This is quite variable, in accord to the time of the year, the state of the weather, and the condition of the colonies or nuclei in which they are at the time of their usual mating-flight. During June, July, and August, most young queens will be laying ten days after they emerge from their cells; but in May and September it is often 12 to 18 days before I find them laying. I usually figure that it is safe to say that a young queen will be laying 22 days after we have placed the little larva in the queen-cell cup, unless the weather is very unpropitious, or it is very early or late in the season."

"Then if I want queens for use the 5th of June I would need to start them from the 10th to the 15th of May, would I not?"

"Yes."

"Well, I believe I can do this usual years, but it hardly looks that way for this year, unless it warms up at once. To rear queens thus early in the season, how would you proceed?"

"I would take the very strongest colony I had in young bees, from which I would select out three combs having the youngest brood in them, after which I would partition off enough of one side of the hive to hold these three combs so they could be easily handled in this space, using queen-excluding metal for the partition. I would now stop the entrance to the hive in front of these three combs so that all bees which had ac-

cess to them would have to go through the perforated metal, when I would shake all the bees off these combs unless I was sure that the queen was not on them, when they are to be set in this space that has the queen excluded from it."

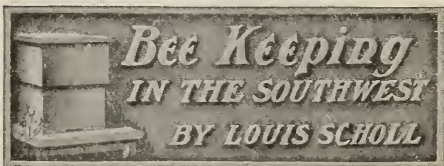
"Would you start the cells the same day that you prepared the hive thus?"

"I generally wait one day after thus fixing the hive before I put in the prepared cell-cups, as, in the trials I have made, I do not meet with as good success where I start the cells the same day I prepare the hive for them."

"How many sticks of cell cups do you usually give them thus early?"

"Unless the colony is unusually strong thus early, I do not give any stick of cells. I prepare from 12 to 20 cells in a warm room, then cover them up warm and take to the hive, when I press them into the comb all along the comb on both sides just above the brood in the central frame, and the bees will build them out just as well as when on the stick; and, as a rule, more will be accepted thus early in the season than would be the case where a stick is used."

"Thank you. I will not bother you longer. Good by."



HOFFMAN FRAMES "FOOL-PROOF" IN NAILING.

Many times have objections to nailing Hoffman frames with V edges been set forth. To get the V edges of the end-bars all the right way seems to cause much trouble, especially in the hands of inexperienced help. Hence this was proclaimed as a serious objection against such frames by some, at least, if they could be condemned for no other reason. 'Tis true that the annoyance and trouble caused by frames that are not nailed right is quite unbearable, and almost all who have handled such frames have experienced this. There is hardly an apiary where the frames are all nailed up alike, and "misfits" are found in nearly every hive. Where two V edges come face to face, the frames come too close together and there is danger of mashing brood, especially when moving the colony.

The trouble does not in all cases come from not knowing how to nail them, and through carelessness or oversight; but beekeepers differ in opinions, hence the frames are nailed in a certain way by one and quite differently by another. The greater majority, however, are nailed in a wrong way out of sheer carelessness or without any thought

about how they *should* be nailed, or following any direction for nailing them whatever. Consequently many bee-keepers have all the V edges on the same side, and use the frames in this way. Such frames, of course, can not be reversed singly, end for end, without being thrown out of gear with their

put into practice for a number of years, is that shown in Fig. 1 at 7. Thousands of V-edge Hoffman frames that have been nailed by following these directions have been nailed up *right*. In nailing the frames, all the end-bars should be handled by the right hand, holding each one so that the V edge conforms to the V made in the hand by closing the fore finger, as in the cut. With the top-bar in the left hand the end-bar is put in the proper position and nailed. The top-bar, still in the left hand, is reversed, and the other end-bar nailed on just as the first. The V edges in this way always point away from the nailer. If every end-bar is handled in this way I will guarantee that the frames will all be nailed right. When the frames are put into place in a hive they should all look as in Fig. 2.

The above method of nailing has been put to a test many times; and out of several thousand frames not a single one was nailed wrong. It is really impossible to do so.

With students at the Texas Agricultural and Mechanical College, special pains were taken to teach them the convenience and the importance of adhering to this rule; and of 18 students in one class who helped nailing frames at the experiment apiary not one made a mistake. It works equally well with younger helpers, who are always so anxious to help, but who can yet hardly "make the grip" around the V edges with their little fingers. This "grip," however, is a valuable one, or it has been to me at least. Besides, it is a *very* cheap "device," which I hope will be given a trial, and henceforth put a quietus to such talk as V-edge Hoffman frames not being "fool-proof" in nailing.

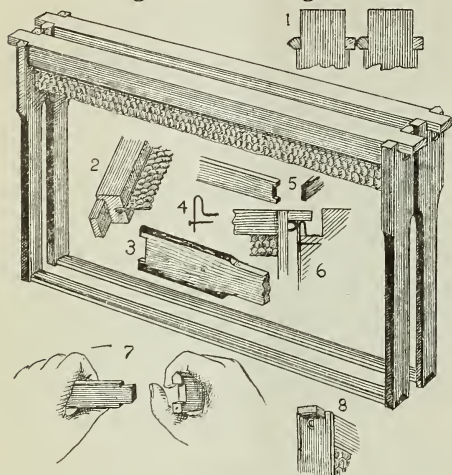


FIG. 1.

neighbors. Others, while they have the V edges at the opposite sides, have them just the reverse from the right way. While these work all right in the same apiary they will not in others. It is just through this interchanging from one apiary to another, resulting most largely through the buying of bees, that a "variety" of these frames results. Such trouble should not accrue. There should be a standard, and all frames should be nailed after that standard. It is true that such a standard exists; but it has

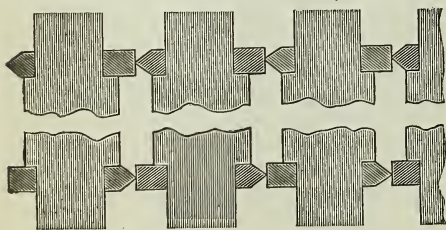


FIG. 2.

not been brought to the attention of the bee-keeping public sufficiently. And even if this standard of having the V edges all a certain way were known, is there an absolutely sure and safe way of getting them all so in nailing the frames? Forms for nailing them might be resorted to, into which the pieces can be placed in none but the *right* way; but these are not much used, and I have never fancied them. All such things are "too much fuss" for the extensive bee-men who do things in a hurry and on a large scale.

The most satisfactory device that has ever come within my knowledge, and which I have



PRODUCING COMB HONEY.

How to Raise a Greater Proportion of Fancy Honey; a Plan to Hold Back Swarming and at the Same Time Keep Work Going in the Super during a Lull in the Honey-flow; a Valuable Article.

BY E. W. ALEXANDER.

Although it is now about 20 years since I gave up this part of the bee business I often think I should like to call the attention of comb-honey producers to some important points connected with this branch of bee-keeping. The natural desire to swarm has always been a serious trouble in producing comb honey. Then the frequent changes in our atmosphere, causing the flowers to stop

secreting nectar sometimes for several days at a time during our otherwise best harvest is another serious trouble in producing comb honey of the finest quality; and with many the trouble of getting their sections all well filled at the close of the season is a hard problem to solve.

Now, in order to show you how these three most serious troubles can be almost wholly overcome I have written this, my first article on the production of comb honey. We will first consider the natural desire to swarm. This is the honey-bees' natural way to perpetuate their race, and is the most strongly imbedded law, not only of the whole animal world, but the vegetable world also, except the desire for food, of any law connected with our existence. This is why we have made *no progress* in changing the *nature* of our bees since man first tried to domesticate them. It is true that certain strains, or, more properly speaking, certain families, have far less desire to swarm than others. This same law can also be said to apply to other animals, including man. Now let us see what we can do to prevent the desire on the part of our bees to carry out this main object of their creation. First we will keep only bees that have but little natural desire to swarm; then we will raise their hives from their bottom boards all around about $\frac{1}{2}$ inch as soon as the weather begins to get warm. In this way we shall give them two or three entrances in the shade at all hours of the day. This, I know from experience, goes a long way to prevent the desire to swarm. Then we will supersede every queen at the commencement of our harvest, with one just fertilized, which, we all know, of itself will to quite an extent prevent the desire to swarm. Then we will see that their hives, including their clamps of sections, contain but a small amount of capped honey for any length of time.

Here is one thing that I used to be very particular about during my thirty years of producing comb honey. As fast as I could find four or five nicely finished sections in a clamp they were taken out and empty ones put in their place, never using more than two clamps at one time on a hive. I don't wonder that your bees swarm when two or three clamps of mostly capped sections are on a hive and a lot of capped honey in the hive below, and then only one entrance where the sun can shine down on the bees through the hottest hours of the day. This will make almost any colony restless, and frequently start a desire to swarm.

The honey-producer, until recently, has been justified in keeping his queens longer than one year, for it is only since Pratt gave us his method of rearing queens that we can have all we want early in the season with only a little trouble. If you will do as I have suggested in the above you will almost wholly prevent the desire to swarm.

Next we will consider the matter of a steady harvest, with no lost days, even if the flowers do fail to secrete nectar for several days at a time. This can easily be ac-

quired in this way: First divide your apiary into two equal parts as to number of colonies, but have all your strongest colonies in one part and your weakest ones in another. Then run the weak colonies wholly for extracted honey and the stronger colonies for comb honey; and attach a good practicable feeder under every hive that is producing comb honey, and extract all you can from your weak colonies and feed it to those that are working in sections. Be sure to give them some *every night*. If the weather is fine, and they are getting considerable from the flowers, it will not be necessary to give them much; but if from any cause they fail to gather from the flowers, then feed enough to keep them busy in their sections night and day, with no stop until the harvest is over and every section is finished in fine shape.

Now don't say this can not be done, for I know it can. I used to produce comb honey in this way twenty-five years ago, and I am sure fifty colonies managed like this, with fifty more to furnish them with honey during bad weather, to work over into comb honey, will produce more first-class section honey than you could possibly obtain from the 100 colonies if they were all run for comb honey at the same time, as nearly all comb-honey producers do. The point is right here: In this way your comb-honey-producing colonies can have a *good steady harvest* from the day you put on your first clamp of sections until the last section is finished, and that is what counts, both in quantity and quality.

Nor, don't get this method mixed up with that of feeding back at the close of the harvest, but do the feeding when the harvest *is on* and every thing is in proper condition to produce comb honey. Make your extracted honey quite thin and give them one *grand big harvest*, and you will see your sections finished as if by magic. With two clamps of sections on, and a good young queen in the hive below, you need not be afraid of their storing too much in their breeding-combs. Then examine them often; and as fast as you can find five or six full sections in a clamp take them out; don't leave them to become soiled and travel-stained by the bees, in order that you may save yourself a little work, and take off a whole clamp at a time; for, as sure as you do, your bees are liable to sulk away their time and possibly fix for swarming.

It looks nice to go into your storehouse at the close of the season and see several tons of choice comb honey with hardly a section that is not of the finest quality; and to see the clamps all empty, with no partly filled sections lying around is another thing which shows there has been some skill used in producing that crop of honey.

Some of you may think that this implies lots of work, which I will admit, and so does every thing connected with the successful management of bees. I know many let them take care of themselves, and appear to be satisfied with whatever they can get;

but I never should like to run a business in that way.

In the above I have called your attention to the three worst troubles in producing comb honey, and I have also given you a practical way of overcoming them.

About twenty-six years ago I sold nearly three tons of comb honey that was produced in this way to a dealer for two cents a pound above the market price, on account of its fine appearance. It is the same in producing comb honey that it is with extracted. You must adopt methods whereby you can combine a fine quality with a large quantity, and then you are on a straight road to success. If I should ever again return to the production of comb honey the above method is the one I should most *decidedly* adopt.

When I was running my bees for comb honey we had no practical feeders as we have now, whereby honey can easily be fed to our comb-honey-producing colonies; neither did we realize how easy it is to have an abundance of choice young queens early in the season to supersede our old queens with. Had I known then as I do now how easily these two important factors can be acquired I would not have changed from comb honey to extracted as I did; for I am sure there is more money in producing a choice grade of comb honey, as I have described, than there is in producing extracted honey.

There are some other suggestions I should like to make to comb-honey producers, which I hope to find time to do in the future.

Delanson, N. Y.

[Mr. Alexander has generally been supposed to be an extracted-honey producer; but it appears from what he has written that he has had many years' experience in the production of a fancy article in comb.

In the foregoing he has given some suggestions that will work well with any plan of comb-honey production. For example, his method of feeding colonies extracted during a lull in the flow could be adapted to the Doolittle system now being described in these columns; that is to say, I see nothing in the way to interfere with that plan.

We have had a good many articles describing feeding back; but so far as I remember these all had reference to a period *following* the honey-flow. But Mr. Alexander shows how this method of feeding back can be practiced to advantage even *during* the honey-flow, and yet at the same time enable the weak colonies that are usually practically worthless for comb honey to contribute according to their capacity to the comb-honey crop.

So many of Mr. Alexander's methods have been favorably commented on that I feel he is a particularly safe man to follow; and I hope some of our readers, at least, will test the plan and then at the close of the season tell us how it works.

It should be noted that, when Mr. Alexander speaks of "clamps," he means comb-honey supers or section-containers. In some of the Eastern States such devices are very

often referred to as "clamps." They may cover just half of the hive or the whole of it. In the former case they are generally used in pairs.—ED.]

FOUL BROOD.

The Izal Treatment.

BY S. SIMMINS.

Referring to page 104 of "A Modern Bee-farm," those who possess a copy will find the following general methods of treatment:

1. To begin with, never spray or sprinkle combs having large quantities of healthy brood with *any* disinfectant. Place them near the outside, and so treat when all living brood has hatched out.

2. In commencing to treat any very weak diseased stock (seeing that this treatment obviates any destruction of combs where there are sufficient bees) first of all, give the said colony a full comb of hatching brood. If this can not be done, then burn comb, frames, and bees at night, first smothering the bees.

3. *Treatment with izal solution.*—No feeding is necessary in summer. Have a change of hives, and wash out each week (three times will generally suffice) with solution of one teaspoonful to two quarts of water. At the same time, saturate the whole of the quilting, and continue this once a week until satisfied all is well.

4. *If desired to feed.*—Use only half-teaspoonful to 12 lbs. of sugar made into syrup.

5. *The water supply.*—One teaspoonful of izal to ten quarts of water.

In warm weather the saturated quilting is put on without wringing out the excess of moisture; but in late autumn and early spring the cloths may drain a little before being replaced. If quilts are not in use, then by all means use one for the time being, even if it is only a thin folded sack. This, being saturated with the solution, immediately checks infection, and when the hive sides are also wet with the same, the plague has little chance of extending its ravages; and, in fact, its area is rapidly restricted.

In autumn there is no better plan than that of feeding rapidly with syrup medicated as above, until the combs are almost solid with such stores. The rapid storing causes a high temperature and raises the vitality of the bees, so that they will clear out every vestige of foul matter, while the cells are occupied by medicated food, which ensures healthy brood in the very cells where but recently only diseased matter was present. Then following on into the spring, with returning warmth and the new development of brood, the workers still draw upon that stored food which is death to the dreaded *Bacillus alvei*.

Where the disease is prevalent this plan of feeding heavily in autumn, and again in spring, if needed, will be found to do away with any possibility of serious loss. The great thing is to raise, in the first instance, the greatest possible vitality in the workers; indeed, I can assure my readers that, under the stimulus of a rapid incoming of either honey or syrup, the average domesticated honey-bees will dispose of all visible evidence of foul matter, without medication in

any form. The izar, however, checks infection and finally destroys the enemy.

Right here I wish to state emphatically that the bees in Europe generally are no more immune than those in America or elsewhere. No bees are more troubled with the complaint than our common native variety, and none so helpless when they have it. Bees imported from Carniola or Italy, with us, just as they may be with you, are better able to subdue it. Selections can, however, be made that will enable the bee-keeper to work with such improved stock as will be practically immune. These bees will hold their own against any complaint during the busy season; and, if occasionally failing during the trying springtime, will always respond immediately upon receiving the slightest assistance.

In a future paper I propose to give particulars of experiments that will prove of interest to all who have suffered from the ravages of foul brood. None but convincing practical demonstrations will be offered by me.

Broomham, England.

INTENSIVE BEE-KEEPING.

Alexander's Article on the Care of Bees Not so Good for a Locality Having an Early Honey-flow.

BY J. RIDLEY.

On page 1237 Mr. Alexander tells how to obtain the best results from 100 colonies of bees. His method in brief is:

1. Stimulative feeding from the time the bees are taken from the cellar about April 15.
2. Dividing the colonies, making two of each, about May 26.
3. Giving the queenless colonies two capped queen-cells each.
4. About the last of June dividing these latter colonies, making two of each, thus having 300 colonies "in good condition for any harvest that commences after July 4."

It may seem presumptuous on my part to criticise so able and successful a bee-keeper as Mr. Alexander; but to safeguard the interests of Minnesota bee-keepers, and caution them to "go slow" in experimenting along the lines suggested, I offer the following for their consideration:

At the recent meeting of the Minnesota Bee-keepers' Association, held in Minneapolis, Mr. Lamont was on the program for a paper. Instead of preparing a paper himself he read from GLEANINGS the article of Mr. Alexander. Quite a discussion of the article followed, and it was the general (and I think the unanimous) opinion of those who took part in the discussion, that, while that method would probably be all right in Mr. Alexander's locality in New York, and similar localities where a large part of the honey-flow is from buckwheat and other late honey-producing flora, it would not be a success here.

The reasons given as to why it would not be successful here, briefly summarized, were as follows: 1. Our springs are too late and cold for such stimulative feeding as was recommended. From April 15 to May 15 we are apt to have a good deal of cold freezing weather, especially at night; and if one undertakes to increase brood-rearing by stimulative feeding, unless he is extra careful he will have a lot of chilled brood.

2. If one followed that method, and increased from one colony to three, he would be likely to have three weak colonies that would store but little if any surplus honey. Best results are obtained "in this locality" by preventing increase as much as possible, making each colony strong in bees. One strong colony will store more surplus honey than three weak or medium ones.

3. In many localities in this State the principal honey-flow is about over by July 4, when, according to Mr. Alexander's method, one would be just ready for it. But little buckwheat is raised, and in many sections none whatever, and a late honey-flow can not be depended upon. Last season there was practically none. Some localities have basswood, but that often fails to yield honey, so that bee-keepers have come to put their main reliance for honey on white clover, which is generally at its best from about June 15 to July 4, so we need to have our colonies strong for storing honey by the middle of June.

4. There is but little demand for bees. The profits from the sale of the colonies increased is hardly worth considering as a factor. One would hardly get more than enough to pay for the hives.

There is no doubt that we fail to give our bees the attention they require in order to obtain the best results. We practice too much the slipshod method. As many farmers skim over too many acres without giving thorough cultivation to any of them, so bee-keepers are apt to keep more bees than they can properly care for. We should study the conditions that prevail in our localities, and strive to adapt our methods to those conditions. Uncle Sam's farm is very large, and has an almost unlimited variety of soil and climate; and what will grow and thrive and be a success in one part will prove a complete failure in another.

Monticello, Minn.

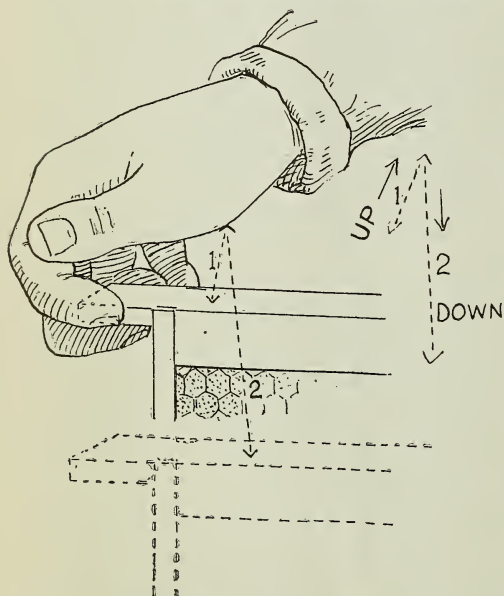
[There is no question but locality does have a very strong bearing on the success or failure of the various plans that have been recommended; that is to say, a method that may work in one place might prove utterly inadequate in another. Mr. Alexander has already spoken of the peculiar conditions in his locality; and in one or two footnotes I have referred to the same thing, suggesting that possibly one or two of the plans under consideration would not work in localities where the season closes by July 1. Taking it all in all, your suggestions should be carefully considered by those who have local conditions like your own.—ED.]



CHAPTER IV.

Continued from last issue.

Perhaps I better say a few words regarding this shaking-off part, for very many do not seem to be handy at shaking the bees off their combs, some of our best bee-keepers telling me that it could not be done to any advantage till I had shown them how. Let me see if I can tell the reader so he can do it with ease. Let the projecting ends of the top-bar to the frame rest mainly on the big finger of each hand; then, with a quick upward motion, toss these ends against the ball of the hands at the base of the thumb, and at just the instant the ends of



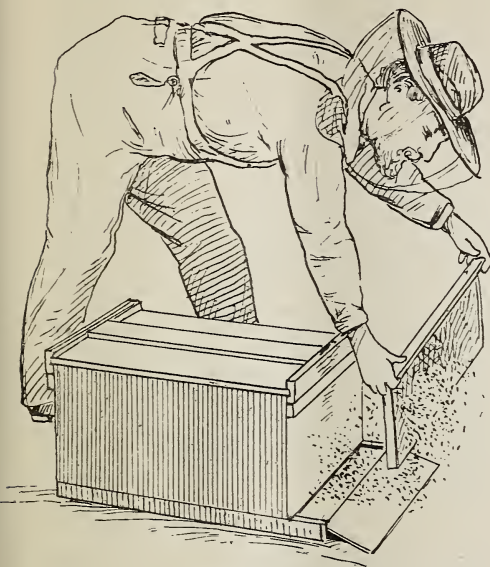
DOOLITTLE'S METHOD OF HOLDING AND SHAKING FRAMES.

the frame strike the ball of the hands give the hands a quick downward motion. This takes the bee off its guard, as it is holding on to keep from falling off the comb downward, having no idea that there is any danger from falling off upward. But this "falling upward" is exactly what it does, as three-fourths the bees, when I shake the combs, are tossed up in the air as they are dislodged. The instant the ends of the frame strike the fingers again, toss it up against the ball a second time, and then back to the fingers, when, if you get the "hang" of the matter, as you will after a few trials, you will find that 990 out of

every 1000 bees are off the comb; and if you have that proportion off you will have no need of the brush, for it is not necessary to get each and every bee off the combs of brood. Only ten to fifteen bees left on each comb will be but from 100 to 150 bees for the whole, which will make little difference with the swarm. However, I like to get as many as is consistent with quick work, with the shook colony, for the more bees there are here the better the results in honey. Then, I wish to say that there are times when thin nectar is coming in bountifully, when I can not shake all the bees off thus, or by any other plan; for if I do the bees will be so nearly drowned in this thin nectar which shakes out of the combs that they will not go in the hive. During such a flow of nectar I shake the combs the same way, only do it so gently that no nectar is shaken out, when the bees which still hold to the combs must be brushed off. I have always declared it a nuisance to have thin nectar coming in at a time when I am obliged to free combs from bees, but have always been consoled by the thought that this thin nectar is what is to be turned into cash by and by, when the bees have it evaporated into nice honey, so enjoyable to the consumer later on. Where I am obliged to use a brush I greatly prefer the "Dixie," as sold by The A. I. Root Company, to any other I have ever tried, and I have used all which have been advertised, and many besides, which have been sent me for my approval and recommendation. This brush is soft, so that it does not injure the bees, and yet is firm enough to take all the bees off one side of the comb with only one stroke over the same. In the absence of any brush, through oversight or something of the kind, a bunch of five or six tops of goldenrod, or even of grass, will do very well—in fact, better than some of the brushes which have been sent me.

As the hive into which this "shook" colony is to go is really their own home, and contains more than an abundance of honey, this plan does entirely away with all the labor and time used in drumming and pounding the hives, as well as waiting for the bees to fill themselves with honey—something which has been considered as a thing of vital importance with all of the other plans of "shook swarming." Nothing of the kind is required to make the swarm stay, or for any other purpose, for the bees are still on *their own combs*, with sufficient brood, and room enough for the queen to lay right along. All of this, together with the carrying of the honey from the combs into the sections, keeps them contented, and brings great results in honey to their keeper. As a prolific queen in the height of her egg-laying always falls off the comb she is on at the first shake, she being so heavy with eggs, I hold each comb as low as possible in front of the entrance in shaking, so she shall not be injured by the fall. I have reason to believe that many queens have been seriously injured by the "shook swarm-

ing" of the past, through the carelessness of the operator in this matter, and then the plan condemned, because, at the end of the season, more honey has been found in the brood-chamber than in the sections, when the operator alone was to blame for the



SHAKING THE BEES IN FRONT OF THE HIVE.

queen being injured to such an extent that she could not keep the combs filled with brood, as she otherwise would. Always remember that a good queen is the chief source of success in all things pertaining to a large yield of section honey. As fast as the combs are freed from bees they are set in the empty hive, at first brought, each comb being set in the order it had in the old hive till all are in.

I now go to one of the colonies considered too weak to tier on the third visit, take off the cover, put on the queen-excluder just taken off from No. 1, and on top of this I set the hive of beeless brood, when the cover is put on top of all.

If, in shaking the bees off their combs, I come across any comb which is not more than one-third to one-half full of brood, the same having as many empty cells as those containing the brood, such a frame is kept out of the hive of beeless brood, and used to go in No. 2 when it is prepared the same as No. 1 has been, instead of a comb taken from a weaker colony, as was done when fixing No. 1. As this saves time, can be found in very many of the colonies, and answers the purpose just as well, I am constantly on the lookout for such during the time I am "swarming" the colonies.

Returning to No. 1 the bees that still adhere to the empty hive and bottom-board are dislodged, so as to fall with the rest of the "shook" colony, when the hive and

bottom-board are carried to No. 2, which is to go through the same process as has No. 1, and so on till the whole 13 have all been "swarmed," which takes far less time for each one than the telling how it is done. By this plan I do not have to look for the queen nor overhaul the combs, nor by any other plan look for queen-cells, as is generally the case with most of the other ways of artificial swarming. In all the other plans of "shook" swarming it is recommended to wait about the "swarming" till queen-cells are sealed, or have eggs or larvæ in them. In my practice I have found that this is all a myth, and it is also something that is not applicable to the work in an out-apiary, with only a few visits to the same each year.

All that is necessary is to have all the colonies, to be treated, strong to overflowing with bees. Then, when the time is ripe to do the work, *go on and shake*, no matter about the queen-cells, whether they have them or not; only, if any are found with eggs, larvæ, or pupæ, in them, when the combs are shaken and freed from bees, they should be cut off, so they will not bother by emerging in the hives above the queen-excluder. Nor can the idea that the colony that starts no queen-cells, and would not swarm if let alone (the same giving better results if left unshook), be tolerated or carried out in an out apiary where worked for comb honey on the "few visits" plan, even if this "giving better results" was the case, as the liability of such colonies swarming at unexpected times must always be counted upon. But such is not the case when the apiary is worked on the plan here given, for nearly all of the colonies treated in this way give better results than any colony which does not swarm, worked in the usual way. Therefore this way of working, as here given, does away with all the labor required in trying to find out whether colonies are going to swarm or not, by way of looking for queen-cells once a week in using the different plans that have been published, such as tipping up the hives and smoking the bees so the bottom of the combs may be inspected for cells, clamps for holding the sections from falling off while this inspection is going on, the prying-apart of divisible brood-chambers to see if queen-cells are being built between, or even having a "cell-detector hole" cut and fixed in the back of the hive, which can be opened once a day or oftener to discover if cells are started on a comb, cut and fixed in such a way that, if queen-cells are started in any part of the hive, they will be started so they can be seen from this hole; and, also, all the labor of requeening, caging queens, etc., used in trying to prevent swarming. In fact, it supersedes any and all the plans heretofore used by hundreds and thousands of apiarists when working on the shook-swarming plans or prevention of swarming. And as it not only does away with all but a minimum amount of work, and also gives the greatest possible yield of section honey,

I claim that what is here given stands "head and shoulders" above any thing else in sight during the past or at the present time, especially in working an out-apiary for comb honey.

Hive No. 3, on row 2, contained what I considered my best breeder for comb honey, and I had left it strong in bees and brood on the last visit, hoping it might make some preparation for swarming by the time I came again, and when shaking it I found just what I wanted, which was queen-cells with one or two day old larvæ in them, the larvæ literally swimming in royal jelly.

The shaking of these combs was done more carefully than with the others, for fear of dislodging the swimming larvæ, although there is little danger along this line, until the royal larvæ attain an age of four or five days. This hive of beeless brood and queen-cells was placed on top of the strongest colony not tiered on my third visit, and only this one hive of brood was put on it, while the others had two and three hives each, as I had 13 hives of brood to go on six colonies, hence taking only one for this hive left twelve to go on the other five not tiered before. Why I put no other brood on this colony with these cells was because I wished these royal larvæ given every possible advantage looking toward the best of queens. I do not generally depend on queens or queen-cells from the out-apiary for work therein, as I generally have more time and conveniences for rearing them in the home yard, taking whatever I wish along this line with me at each visit. But if we have a good breeding queen at the out-apiary, and wish to use cells or queens from her brood, as was the case above, this tells the reader how it can be done.

The reader is undoubtedly familiar with the truth advocated of late years, that, if an extracting-super is placed over a colony as soon as it becomes strong in bees, swarming will be retarded to quite an extent. Then on the arrival of the honey harvest, if this extracting-super is taken off, and a super of sections placed on the hive, the bees will the more readily enter the sections from the fact that they have been used to working above the brood-nest. I practiced this quite largely eight to twelve years ago, and obtained much better results than I had done before. Ever since "Scientific Queen-rearing" was given to the public (1889) I have been spending my best efforts in trying to work out a perfect plan of non-swarming, either with or without manipulation; and during the first six or seven years, just as I would begin to think I had something of value a different season would come, the bees swarm, and spoil it all. I was about to give up in despair, when one day it came to me, "why not use this extracted-super plan, combined with shook swarming?" which was then first appearing in sight. My mental reply was, "I do not want any plan that will not put the first-gathered honey (more than is needed for brood-rearing) anywhere else than in the

sections." Then the thought came, "Is it not possible to have that first honey, which others extract, stored in the upper story of a full-sized hive, thereby retarding swarming still more, and then work in such a way as to cause the bees to put it in sections later on?" With this, despair turned to hope, and this hope has become a reality by the perfect working of the plan as now given to the public; and the result of the year 1905 (114½ lbs. of section honey on an average per colony), the poorest of all late years for honey in this locality, has caused me to write the matter up, so all who wish can use it the coming season.

Having the 13 colonies "swarmed," and the six others on the road to prosperity after a careful looking-over the whole, to see that "all is well," the scythe is again wrapped up, allowed a whole seat in the ambulance (auto), the starting-crank turned, when I am soon experiencing a delightful rest in the "noonday" sun (which had seemed pretty hot in my work in the beeyard), made so comfortable through the pleasant breeze caused by the tireless running of the automobile. In this we have what was done at the fourth visit although the same is pretty well mixed up with other things pertaining to the developing of this plan.

OVER-WEIGHT SECTIONS AS AN ADVERTISING SCHEME.

A Reply to Wm. Muth-Rasmussen.

BY T. K. MASSIE.

Our friend Wm. Muth-Rasmussen, page 1310, thinks that, as I cut out all light-weight sections, and convert them into chunk honey, I should be consistent and cut out, also, "all combs weighing over a pound and convert them into chunk honey"—should "be honest toward myself," etc. This naturally implies that I am losing something on over-weight sections, and that the light-weight-section men gain where I lose. Let us follow this thought to its logical conclusion, and see if I am not ahead of the light-weight-section people in the final outcome. Suppose my $4\frac{1}{2} \times 5 \times 1\frac{1}{8}$ plain sections average 18 ounces. Take off 1 oz. for sections, and we have 17 oz. honey, net. Then I get 18 cents for 17 ounces of honey, or $1\frac{1}{7}$ cents per oz. Suppose the light weights average 15 oz. They would then weigh 14 oz. net. Suppose he gets 15 cts. for the 14 oz. That would be $1\frac{1}{2}$ cents per ounce. Then in every 238 sections sold, the light-weight man gains 5 cents on me, which is about 12½ cents per thousand. Does our friend think the light-weight man can pay his extra bills of advertising, time lost in selling, dues in the Honey-producers' League, etc., for 12½ cts. on a thousand? I say, no. My over-weight sections are the best-paying advertising I can do. Mr. M. overlooked the hint I gave on the sale of extracted

honey — a hint which I thought all practical bee-keepers would see without having to state it clearly. But here it is, in plain words. I sell *all my extracted honey at 18 cents per pound.* The light-weight-section fellow gets about 7 cents, average. Who is losing here? I am educating all my customers — all consumers in my territory — to demand a full-pound section. Next season, grocers will be called upon to cut out light-weights and sell by the pound. This they will not do. Then, of course, they will not buy the light-weight sections.

I agree with friend M. "that force of honey-flow, temperature, and other atmospheric conditions, strength of colony, building and storing propensity of individual colonies," etc., are factors which govern, to a great extent, the weight of the finished section. But I again disagree with him when he states that more is dependent upon these factors than is upon the "size and shape of the section." On these points I am in accord with friend J. E. Crane, page 1305. I endorse, in the main, all he says. I am glad to say, also, that this is one time more that I can endorse the editor's statements in his footnote to friend Crane's article. All the readers of GLEANINGS will do well to go back and again carefully read that article and footnote, and ponder them well.

Tophet, W. Va., Jan. 23.

IF I WERE TO START ANEW, WHAT STYLE OF FRAMES, SUPERS, AND AP- PLIANCES WOULD I ADOPT?

The Hoffman Preferred for Extracting.

BY WM. ROHRIG.

[Mr. Rohrig is one of the most extensive bee-keepers in the West. At one time, at least, he owned apiaries both in Arizona and California, with a total aggregate of something over 1000 colonies.—Ed.]

In the discussion of the merits of the Hoffman frames, one thing, to my mind, has been brought out quite clearly. Bee-keepers will never agree on a uniform style of hive, frame, super, or other appliances. While location, undoubtedly, has a great deal to do with this difference of opinion, yet it is a fact that there is difference of opinion even in the same locality. This is brought about to some extent, doubtless, by the natural dislike of many to having any thing but uniform hives, etc., in use in the same yard. Having started with a certain style of hive and frame, and other appliances adapted to their use, they very naturally dislike to change.

It so happened in buying a number of apiaries some years ago that I was unfortunate in securing hives of different sizes and styles. I saw at once that, if I intended to keep bees on any thing like a large scale, it would be well for me to adopt a uniform size of frame. As most of my hives and frames were of the Langstroth style and size I concluded to try the Hoffman frame;

so, about fourteen years ago I sent a small order for this frame and began to experiment with them. As I was producing extracted honey I am free to say that I did not like the looks of the things, fearing that the end-bars would be quite a nuisance when it came to uncapping. After two years' trial I was convinced that the frame was all right for my use. By using only nine frames in the super of a ten-frame hive, the annoyance that I had expected while uncapping was scarcely noticeable, and, no other serious objections presenting themselves, I began to use the frame quite extensively, until now I have several thousand in use. I still have a large number of free hanging frames in use, and they are good frames too; but in time they must all go, and the Hoffman will take their place unless some other self-spacing frame should be developed that I think is better. My reasons for preferring the Hoffman above all other frames are that, with ordinary care, they are always quite accurately spaced. If it is desirable to move an apiary, so far as the frames are concerned the hives are always ready, and there is no danger of the frames jamming together, mashing the bees and making a mess of it; and they can be handled rapidly during the busy season when time is money. I do not wish to be understood as saying that the Hoffman frame is without fault. It has its faults. The main one with me is that it can not be manipulated with the same rapidity when the weather is cool and propolis hard. The free-hanging frame has, perhaps, a little the best of it at this particular time of the year; but usually no great amount of work can be done at such times any way, so that this does not count for much.

In conclusion I will say that, if I were to start anew to build an apiary in this locality I would adopt the ten-frame Langstroth hive furnished with Hoffman frames (V end-bars) well wired, with full sheets of foundation in each frame.

Tempe, Ariz.

PROPER COLOR FOR HIVES.

A Reply to Mr. Greiner's Article, Page 85.

BY ALLEN LATHAM.

Mr. Greiner's article has much in it with which I can heartily agree, and the same can be said of the footnote by the editor; but there are some statements which are misleading, and others which are not based upon the bottom facts. With the editor's permission I will ask for further space in which to make my position clearer.

Let me state again that my experiments have all been conducted with air-spaced hives covered with an almost black roofing-paper. I have grave doubts as to the advisability of painting thin-walled hives black, not so much because of their being too severely heated by the sun as because

of their liability to become chilled by too much radiation.

In spite of what I have just said, and in contradiction to the statement to be found in the fourth paragraph of Mr. Greiner's article, I offer the following fact: I bought this fall seven colonies in box hives. Two hives were white, two brown, one yellow, one snuff-colored, and one not painted. The last hive mentioned was weather-beaten to a very dark tint, almost black. The past summer had a spell of weather in which combs melted down freely. Of these seven hives the only one with melted-down combs was one of the two white hives. These hives were out in the full sunshine.

In all of our considerations of this matter we must keep in mind not only reflected heat but radiated heat; not only the heat from the sun, but other sources of heat; not only the color of the hive, but where the hive is to be placed.

Mr. Greiner in his fifth paragraph makes a most excellent point when he says: "Why should we work in the opposite direction, etc.?" The matter of loss of heat from the super has caused me much perturbation of mind—so much, in fact, that last summer I whitewashed several of my supers, making them a snowy white. I must say, though, that I detected no difference in results gained thereby. I use thin section-cases inside of warmly arranged supers, so that the night does not bring about a serious cooling of the sections.

I am rather of the opinion that black hives can be used in the open, provided the covers are white, or, better still, covered with a substance bright and polished. The rays of the sun are so direct in the season of melting-down of combs that the walls of the hive can be of any color so far as absorption of heat is concerned.

The melting down of combs, by the way, is laid too largely to the rays of the sun. Who ever heard of the combs of a weak colony melting down? Has any one ever had combs melt down except during a heavy honey-flow? I don't know how it is elsewhere, but here the chief cause of melting-down of combs is the heat generated by the bees in reducing great quantities of nectar, at which time the combs are loaded with honey and with bee-heavy with honey. To be sure, the melting down occurs usually about two in the afternoon, when the heat of the day is at its maximum; but that is a case of "the last straw."

In the first paragraph of his footnote the editor makes an excellent suggestion to Mr. Greiner, and then immediately shows that he himself can profitably read parts of my article again. Let him read from page 1313, the paragraph in the second column, which starts, "The last statement may seem to contradict," and he may then think differently. To enter into a minute discussion of all heat lost and gained by the cluster of bees in winter would require most exhaustive and painstaking experiments in order that definite deductions might be drawn.

One can only generalize; but generalizing is an excellent thing when so well roped that it keeps well within the premises.

The hotter a body is, the more rapidly will it lose heat; and, conversely, the colder a body is, the more slowly will it radiate heat. All bodies are always losing and gaining heat. Warmer bodies lose more than they gain; colder gain more than they lose. Bodies of nearly the same temperature make a pretty fair exchange. Bearing in mind these and possibly omitted kindred facts, let us think of the conditions surrounding the cluster of bees in winter. In white hives the cluster is bounded by a wall which is always cold or colder; in black hives the cluster is bounded by a wall which is well warmed during sunny days, but gets cold faster at night than the white wall. In both cases there is between the bees and the walls of the hives a layer of air. In the white hive this layer is moist, cold, and will conduct heat to the walls from the cluster; in the black hive this air (if the entrance is ample) is warm during the day; is dry comparatively, and does not conduct much heat to the walls of the hive. In both hives the clusters of bees will radiate heat alike and equally. If the wall of the black hive is colder than that of the white hive it will not radiate as much heat to the cluster as will that of the white hive. Now, just how much warmer is the wall of the white hive than that of the black hive during the winter night? Mr. Editor, just sit an hour upon each and report. To be sure, the black will be cold in ten minutes after the sun goes down, while the white will not be much colder forty minutes after the sun goes down; but, since the white was already cold at the start, it will have to be caught up with by the black before the black can get colder than it. I am not sure that the black ever catches the white; but I know it never gets far ahead in case it passes white.

Permit me, Mr. Editor, to make one suggestion about snow-covered ground. Is it not the porous character of the snow, making thus of it a splendid non conductor of heat, that accounts for its protecting power rather than its color? If snow were black it would do the same; and, in fact, it is black at night when the most freezing takes place. Being white it serves to cool off the earth in that it reflects the heat of the sun during the day. Our mild winters are our snowless winters; but if snow were black it would melt dangerously quick, so that white is the proper color.

I am pleased to see that my article has aroused the interest of so good an apiarist as Mr. Greiner, and I can say with him that I should like to see more expression of opinion. Though I am not so confident that black is the all-desirable color in summer, I know that it is the very finest in winter. I think that no one can make a mistake in having the walls of his hives black, but I now believe that the covers should not be black. I whitewash my covers (I have no shade), but don't like the handling of the

whitewashed cover. I am seeking something better.

I wish to thank both Mr. Greiner and the editor for the kindly way in which they have criticised my article upon the proper color for hives. I am well aware that what I offered in that article abounds in unorthodox principles, and that I might well have expected to be branded a heretic. My chief hope is that Mr. Greiner, Editor Root, and others may live to reap the blessings which come from the following of these principles.

Norwich, Conn.

SWARMING NOT A CALAMITY BUT A BLESSING.

Why a Divisible-brood-chamber Hive is Superior to a Twelve-frame Holtermann; Working in Harmony with Nature rather than Fighting her.

BY J. E. HAND.

Mr. Holtermann's article on swarming—p. 365, is especially interesting to me, as it shows about how the average honey-producer looks at swarming. Viewing his article from the standpoint of the hive I am using, and with the light I now have on hiving swarms so that no break shall occur in the storing of surplus honey, I am very certain that Mr. H. has greatly magnified the evils of swarming.

He has, in the very beginning of his article, branded swarming as the bane of modern apiculture, and declared it the cause of all the ills known to modern bee-keeping, and all this without even telling us for a certainty how we can prevent this great catastrophe, for he has acknowledged his inability to prevent swarming successfully.

After admitting his system to be entirely inadequate to the demands of a new swarm of bees, so that no honey shall be lost by the issuing of a swarm, he makes the broad and contradictory statement that the twelve-frame hive is better for comb-honey production than a smaller one. The only remedy that Mr. H. has to offer for this great evil (swarming) is the hope that Mr. Aspinwall's hive may prove a success.

When a man with the inventive genius possessed by Mr. Aspinwall pits his reasoning powers against the instinct of the little bee, there can be but one result—the man should win. The question yet remains, "Will the end justify the means?" Right here the question arises, "Is the prevention of swarming desirable from the standpoint of the comb-honey producer?" It is true there are times and conditions under which a sure preventive of swarming would seem to be desirable, such as out-apiaries, and where the apiarist has not the time to care for swarms. In such cases the "shook-swarming" system is a sure thing, and leaves nothing further to be desired.

From Mr. Holtermann's point of view, with his twelve-frame hives for comb-honey production it is no wonder that he considers

swarming as a great calamity. What could any one expect from the average swarm of bees hived in a twelve-frame hive, in any ordinary location? From the standpoint of the horizontally contractible-brood-chamber hive that is capable of contraction horizontally to nearly a third the capacity of his hive, swarming ceases to be a calamity. On the contrary, it is a blessing, as not only can much more comb honey be produced by allowing the bees to swarm once, but a much higher grade of honey is assured. It is not possible to produce a strictly fancy article of comb honey over old black brood-combs, hence the prevention of swarming is not desirable from the standpoint of the comb-honey producer.

It is not *swarming* that is the bane of modern apiculture, as Mr. H. would have us believe; but no greater calamity could happen to a swarm of bees or their owner than hiving them in a twelve-frame hive for comb honey.

Ever since bee-keeping has been a pursuit of any consequence, much talent has been brought to bear trying to eliminate the God-given instinct of the bee by breeding out the swarming impulse, and much inventive genius has been wasted in a vain attempt to produce a non-swarming hive. It is needless to state that very little has ever yet been accomplished along these lines. All this talent has been brought to bear in direct opposition to nature's plan. The successful physician, in treating diseases, will always work in harmony with nature, and by so doing he will assist her to throw off the shackles of disease. How much better it would be if some of the talent that has been wasted trying to invent non-swarming hives had been directed along the lines of assisting nature by working in harmony with the natural instincts of the bees, so that they may be kept contented and happy, and working with a rush and vim that can never be found except in a new swarm of bees!

Every thing that has ever yet been accomplished has been along this line, and it has changed what seemed to be a calamity into a blessing. I allude to the horizontally contractible hive. The instinct of the bee to swarm was given it by an all-wise Creator, who makes no mistakes, as the only means of propagating its species and perpetuating its existence against its enemies, who were sure to be attracted by its rich stores of wealth and sweetness. If it had not been for this instinct the bee would, long ere this, have become extinct. In view of these truths who can truthfully make the assertion that swarming is a calamity?

Mr. H. has also fallen into the oft-repeated error common to the advocates of a large-brood-chamber hive, in assuming that a large hive always contains a large colony of bees. He says a colony which did not cast a swarm in 1905, and filled a twelve-frame brood-chamber in the fall as well as another, an eight-frame one (winter and other things being equal), will build up faster in

the spring. Not knowing any thing about the age of the queen in the twelve-frame hive, and the eight-frame one having cast a swarm last season, it will contain a young queen; and the fact that she filled an eight-frame brood-chamber last fall proves her to be a good one. I will take my chances on the eight-frame hives. Of course, the eight-frame hive should be expanded to the full capacity of the queen during the breeding season. The chances are two to one in favor of the young queen. It is the *queen* and not the *hive* that does the business at this end of the season. There are times when an eight-frame hive is too large, and there are times when a twelve-frame hive is too small; but who wants to carry a barn around during the whole year for the sake of using it a few days during the breeding season?

The keynote of successful modern apiculture is expansion and contraction by means of shallow sectional hives, and the handling of *hives* instead of *frames*. The bee-keeper who handles frames is wasting time that could be put to better use. He is on a par with the farmer who would cut his hay with a scythe or his grain with a cradle. There is a better way.

Birmingham, O., March 26.

[Strong arguments can be advanced on either side of this subject of large and small hives. In some localities, and perhaps with some bee-keepers, it is far better to let the bees swarm once; but I can not help feeling that, with the average bee-keeper and the average locality, it would be very desirable if this swarming propensity could be held in check.

Is it not possible, Mr. Hand, that some of the methods for the prevention of swarming virtually contemplate some plan of *artificial* swarming that brings about the same active energy that is so noticeable after a case of *natural* swarming? Several of the shook-swarming plans are really methods of artificial swarming; that is, the natural bent of the bees for a new home and more room has been satisfied. How do they know but that they have actually swarmed?

The J. E. Chambers plan, described on p. 532, May 1st issue, virtually brings about a condition that is almost analogous to that surrounding the colony that has just swarmed in the natural way. The same may be said of the Doolittle method described on p. 598 and in this issue. Possibly you may argue that no *artificial* method can approach or compare in actual results with the *natural* method. This may be true.

Personally I have always had a strong leaning toward a large hive; and I have also had a leaning toward a divisible hive and shallow frames. These two ideas may seem somewhat antagonistic; but the divisible brood-chambers allow of a *gradual* expansion to a large hive if needed, while a twelve-frame hive or a Jumbo ten-frame requires an expansion in big jumps, so to speak. It is true that division-boards can be used; but

this brings about a contraction that is not as perfect as a horizontal expansion with shallow brood-chambers.

On the other hand, it may be stated that shallow frames chop up the brood-nest into a multiplicity of small patches of brood; and I have had a fear that the bees will be more contented on large patches and fewer of them; and if that be true, Mr. Holtermann, the Dadants, and all their following would have quite an advantage over the other crowd favoring a divisible hive. It must not be forgotten that the Dadants have been producers of enormous crops of honey, and that, too, with a percentage of scarcely one or two per cent of swarming in the whole yard.

This is a fruitful and interesting theme for discussion, and we invite Mr. C. P. Dadant, as well as others, to take a *Hand* in it. Yes, Handle it without fear or favor.—Ed.]

UNITING WEAK COLONIES BY THE ALEXANDER METHOD.

BY A. A. CLARK.

After reading Mr. Alexander's article in GLEANINGS, page 354, I decided to try it. This spring, when I removed my bees from the cellar, and after all had several good flights, I examined each one. All had their queens. Five I found that were weak in bees and short of stores. These were fed a cake of the Good candy, and closed on three frames with a division-board. Having a cold spell for a few days the bees were unable to fly; but on the first warm day these five colonies were pounced upon by the other strong colonies and their food all stolen. In the evening I carried each of the weaklings into the cellar, gave each a Doolittle feederful of syrup, and left them in the cellar two days. The third day, being warm, I carried them out and examined them. Each one had uncapped brood and eggs with the syrup nicely stored around it. Then I decided it would be a good time to unite as per Mr. Alexander's directions. I selected five strong colonies, put on the excluder, then the weak colonies, in each a feeder with some syrup, and gave the lower colony one also. To each I gave a little smoke to prevent fighting; then in a little while I blew some in at the entrance. All seemed to agree, as there were no dead bees carried out. Next day was cold, and bees did not fly. In a few days they had good weather, and all were getting pollen from soft maple and willows. I did not disturb these weak colonies until the 19th, when I thought perhaps they might need some more syrup. This is how I found them: In No. 1 a few scattering bees, feed all gone; took out all combs; three had brood in all stages. Just as the last frame was lifted out I found the queen and a small ball of bees on the excluder dead. No. 2, bees all below; queen with part of one leg chewed off. No. 3 were all right, with a queen and a small cluster of bees; brood in all stages; not quite so many

bees as when united. No. 4, bees all below, the queen trying to get through the excluder. No. 5 contained a daughter of the Root queen I received as a premium in a photo contest—a very promising young queen. I was hoping she was all right. In this I was disappointed. The bees were all below, and I found her on the excluder nearer dead than alive. I fed and caged her, and put her in a strong colony, but she never recovered. As the day was fine when I examined them I decided to divide the lower colonies and save the queens if possible, all of them being young and prolific Italians. So I took extra hives with two extra combs of sealed stores; then one comb of brood and bees, putting the queen and the comb of brood in the hive between the two combs of honey; then a division-board and cloth over; then I exchanged places with the strong colony while they were flying. Now, April 23, they are all fairly strong. What I want to know is, why one of them was all right and the others the way I have described.

Le Mars, Ia.

[As Mr. Alexander is probably still confined to his bed—at least unable to take care of his correspondence—I take the liberty of suggesting where, possibly, your trouble may be. By referring to Mr. Alexander's article on page 354 he says unite the weak one "to a good strong colony." His understanding of "a good strong colony," from what I saw at his yards, I should say might be different from your idea of the same thing. A colony must not only fill the spaces between the frames comfortably, but must be fairly boiling over with bees. Did I not actually see the proof of Mr. Alexander's statement verified right in his own yard, of two colonies one above the other, each having a queen, and separated by a perforated zinc, I should have supposed, of course, that such a plan would not work; that the bees would fight, that those from below would immediately go above and ball the queen. But clearly these things didn't happen at the Alexander yard at the time of my visit.

There is something else, I believe, is important; and that is, doing the uniting *without any smoking*. When you smoked them to prevent them from fighting you set them to boiling over. In their excitement they went up into the upper story, there came across the strange queen with her strange odor and killed her. But by *quietly* uniting without smoke the bees from below would not come up till after a day or two. In the mean time, the weakling bunch of bees will have acquired the odor of those below; then when there is actual intermingling there will be no fighting.

You spoke of one set of bees being united successfully. Is it not possible that this got less smoke?

Another thing should be mentioned. Mr. Alexander's bees are of the very gentle leather-colored Italians. You do not say what yours are. From the fact that you thought it necessary to *smoke* them before uniting would indicate that they might have

been hybrids. And this leads me to say that *possibly* hybrids, Cyprians, and other cross strains would not submit to this plan of uniting with queens.—ED.]

BRIEF NOTES ON CURRENT TOPICS.

Hoffman Frames not Movable.

BY H. H. LEWIS.

I was much struck by the apparent ease with which you stated you could take out the frames in early spring as compared with my experience. Why, I have turned hives upside down and driven the frames out with a hammer, smashing some frames all to pieces. I began to ask where and why the difference, and why are Hoffmans always hard to handle with me? Humidity of the locality has a great deal to do with the successful use of a Hoffman frame, in my opinion. I am located in a country of excessive rainfall; and during the winter my hives, although under cover, swell with moisture, and Hoffman frames almost to bursting. In the spring it is impossible to get a frame out unless by the method above described; and as fast as the hive dries out during hot weather and shrinks, the bees fill up the cracks between the frames with propolis, and so I am not much better off so far as handling frames is concerned than I was in winter. However, I established the first out-apiary I know of in British Columbia last season, and found out that staple or nail-spaced frames were not the whole thing.

I hauled my honey home in the hives as I took them off, and the rattle and banging together of the nail-spaced frames was so bad that honey was running over the bottom of my light spring wagon, and I had to extract as soon as I got home. Hives with Hoffman frames carried all right.

CONTRACTING ENTRANCES DURING WINTER.

For a number of years I contracted the entrances during cold weather, as you advocate; but the result was that, with me, the moisture was running out the entrance in streams. Bees did not winter well either. Since then I leave the entrance full width at all times, and am more successful. My bees are wintered with sealed covers, no packing on top of frames, as cold is not excessive—rarely goes to zero.

PRODUCING COMB AND EXTRACTED HONEY ON THE SAME HIVE.

The first hive I bought, about fourteen years ago, had hanging section frames. I got about 300 frames of this kind, but soon adopted the open-top frame, as I saw a good many advantages in it, and used the hanging frames to produce extracted honey. They were the correct thing for this purpose—best frame to put on in the spring, while the nights were cool. I have tried sections and these extracting-frames in the same super dozens of times, but never had any success. I tried it this season with no success. As soon as the bees filled out the extracted frames they would swarm rather

than go into the sections. I tried putting another super on, with about half of each, extracting and sections, with the same result. Bees would swarm before they would touch the sections. I had one hive with four supers on, filled the same way, and in the fall I had about all the extracting-frames full of honey, but not a section. I have a poor location for comb honey, any way. The case might be different with abundant pasture and warm nights.

East Burnaby, B. C., Dec. 4.

[It is very possible, and no doubt quite probable, that, in a locality like the one you describe, the Hoffman frame might be very unsatisfactory. In that case I should naturally suppose that the metal-spaced Hoffman as described in GLEANINGS, page 17, Jan. 1st, would suit your conditions better. These would obviate the objections against the staple-spaced frames that you tested.

The entrance of a colony should never be contracted in winter to a point where it would result in an excess of moisture in the hive causing dampness and mold, and ultimately end in the spring in dysentery. But this question of size of hive-entrance depends very largely on the humidity of the locality. Inasmuch as your frames and hive parts swell by reason of the great excess of moisture, it follows that your entrances should be full width during winter.

The excess of moisture in your locality doubtless accounts for your unsatisfactory experience in producing comb honey.

Referring again to the Hoffman frame, you have no doubt observed that it has many warm friends and supporters—for example, the article by Mr. Hickox below is a fair sample.—Ed.]

HOFFMAN FRAMES.

Preferred by an Owner of 1500 Colonies; Hoffman Frames Best in an Extracting Apiary where Propolis is Abundant.

BY W. HICKOX.

Probably enough has been said in regard to the Hoffman frame; but as it seems you have been holding a kind of voting contest in regard to frames I will send you my vote in its favor.

As I have bought bees in all kinds of hives, and in all conditions, for the past six years, I have had a chance to become practically acquainted with nearly all forms of movable frames, and many that are not movable. I have employed from two to six helpers each season, many coming here decidedly in favor of some frame and hive they had used at home; but before the season was through I do not know of one who would not prefer the Hoffman frame to any other he had ever used. I have made a point of asking the boys which was their choice, since the matter has come up so prominently; and as they

have had a chance here to use both the common frame and Hoffman, and have all day at it, first one and then the other, they all tell me that it *makes them tired* to open a hive and find the plain frames. We are getting rid of the old frames as fast as we have good cause to reject them without loss. As we handle about 1500 colonies each year, over half for extracted honey, ease of manipulation is quite an object with us, as well as certainty that a green hand will get the combs properly spaced.

Personally I prefer the Hoffman frame in an extracting-super as well as in the brood-chamber. If we have a honey-flow that amounts to anything the combs are drawn out so the end projections are not in the way in uncapping. If the flow is poor they are no more in the way than the top-bar is, or the common plain end piece, as one has to be careful any way.

A neighboring bee-keeper who has a large number of bees, and who has never given the Hoffman frame a fair trial, hired an "expert" helper, and set him to clipping queens. Upon a later visit to his apiary I found the helper had failed to space the frames properly, and many bees and several valuable queens were killed by the combs being too closely pressed together. This would not have happened with a self-spacing frame.

I believe we have in this locality as much propolis as in any place in the United States—certainly much more than I ever found in Michigan or Ohio—so much that our hands and any tools we may use in extracting are all gummed up with it; but instead of this being in favor of the plain frame I find it much easier to work the Hoffman frame. For some reason, possibly because the bees have to use the space around the end of the frame for a passageway, there is less propolis placed there, and that is just where we particularly do not want it. The little placed along the end-bar, where the frames join each other, does not cause serious trouble. We use a screwdriver to loosen the frames; and should it happen that they do not open readily we simply reach down about two inches from the top, and a little pressure immediately causes them to open up. As this is seldom required it does not begin to take the time it does to space the common frame when we are ready to close the hive.

As to experience I have had with the old frame, I will say two summers I handled 350 colonies of bees for extracted honey, handling the extracting-frames at least ten times per colony, or equal to about 30,000 combs one handling each year, besides the brood-combs, about half as many; so I think I have had enough experience in that time to become used to them; and as one does not like a change in tools unless they are easier to handle and readily adapt themselves to our unconscious muscular action, the fact of a sense of relief when opening a hive of Hoffman frames is to me a proof of their easier manipulation.

Berthoud, Col.

A VISIT TO SAM LING'S BEE-RANCH.

The Only Chinese Bee Specialist in California,
and Probably the Only One
in the World.

BY TRANSIENT.

Hearing of Sam Ling, the bee-rancher (all apiaries in California are bee-ranches), the Chinaman who produces honey by tons; he who could increase his bees in winter and get the first honey-flow as early as May; of the Celestial who, rumor said, was producing large queens from every queen-cell started; of the oriental who has drones the year round for emergencies; of the "pig-tail" who never loses a swarm of bees with his own invention, a swarm-catcher; of the foreigner from the Flowery Kingdom whose perfect, straight comb-honey sections were

for business, for Sam Ling attends to his business—the production of comb honey.

Instead of a "pig-tailed Celestial" we met a man who greeted us in fair English, and made us welcome to his home made with his own hands from timber growing near by.

Our time being limited to one day we made our business known to Mr. Ling, and soon had him in his apiary, where the first thing noticed was quite a commotion in front of two or three hives in different parts of his apiary. All other swarms were remarkably quiet, for it was a cool day, and as late as two o'clock.

"What is the meaning of the excitement there?" I asked of Ling.

"Some queen fly to-day," he said.

"What are queens out for to-day?" I asked. "There is no honey coming in, and no swarms are coming on, surely, thus early."



SAM LING'S BEE-RANCH.

produced without foundation starters; of the "yellow peril" whose quantities of honey would overstock our markets, made the writer determined to seek out this Asiatic apiarist and learn for himself and GLEANINGS readers the truth or fiction of Dame Rumor. Early in January after a long ride by buckboard over hills and through vales, yet following the shores of the Pacific for fully twenty miles, we found it necessary, in reaching our destination, to push on by trail. So a mustang (a Mexican horse) was procured, and we pushed on boldly from the ocean, back into the Coast Range Mountains, some eleven miles to where our foreign bee-rancher was supposed to be located. Suddenly we came upon a clearing in the mountain vastness, and, to our surprise, found before us, not an ordinary California bee-ranch, but a veritable up-to-date apiary. Yes, here, hundreds of miles from a factory, and miles from a road, we saw well-made, well painted Dovetailed hives, all leveled and in shape

"Yes," said Ling, "I make more bees (swarms) every day now."

"But you can't do that now, Mr. Ling; you have no drones at this season of the year. Your queens will be no good."

"Oh! you no sabe him" (Ling talks a mixture of Spanish, English, and Portuguese). "I make him drones one month ago; keep him in those big hives over there."

Interested beyond our imagination I proceeded to question him about the business. He is not up-to-date in bee terms, and it was very hard to get a good understanding of his procedure. As nearly as I can understand, and from an examination of his drones, they are the product of fertile workers. He makes several swarms queenless, and then waits for fertile workers to appear, when he puts the frames of brood, bees, and all over a strong colony, with a queen and drone excluder between the stories. In this way, with an entrance in the rear of the upper story, he lets fly his drones at such times

as he needs them and can keep them in, when he so desires. The workers have access to both stories, and fly from their regular entrance. Having drones he is ready to make swarms, which he does in the old way by taking three frames of brood and bees from strong swarms.

When I ventured to say that his drones were not well sexed and not natural ones, he shrugged his shoulders and said, "Well, I do him that way every year. You go try him. You don't hab believe me; can do it yourself."

"But your queens and cells will be small," I said, "from mere nuclei."

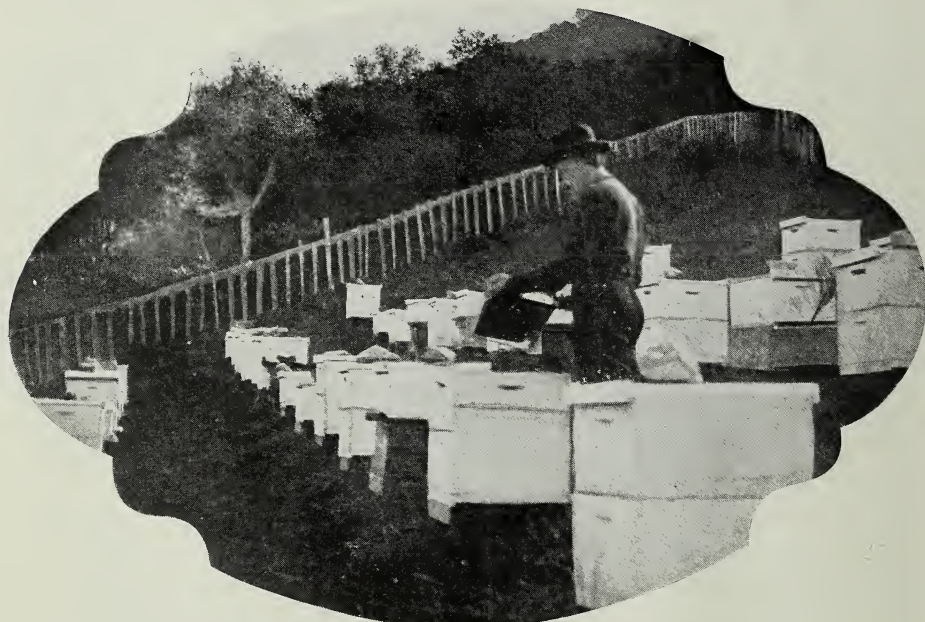
"Oh, no! I make him just so big as I want him," said Ling.

Here again I engaged him with interrogations of how he did and what he meant by

He says, "I no like any more book, for I make him from my own head."

He has manuscript piled a foot high in his Chinese hieroglyphics to prove his determination.

It was late, and a cloudy hour when I proposed to photograph him as well as his bees. He readily gave his consent; but his poses are his own. His swarm-catcher, which I failed to see, and from lack of time did not get a full idea of, is made of burlap and wood strips, and he says it is a success. Ling uses no foundation starters in his one-pound section supers, but uses full sheets of foundation in his brood-chambers, and of his own make, I have been informed. He uses bait combs in his outside rows of sections, thereby getting his sections all filled at the same time, so he says. He remarked that



SAM LING AMONG HIS BEES.

making large queens. He proceeds as follows, but said that I "must not tell somebody." He takes any small queen-cell; and just before it is capped over he cuts from the opening with a sharp razor as small a piece or strip as he can. The bees then, he says, will build on to this opening, or extend it the fraction of an inch. When they again start to cap it over he uses the razor again, and even a third time. In this way he gets large cells and correspondingly large and better queens. Again he said, "Don't hab believe me, you can do it. I do it every year all time."

He, like all Celestials, intends to return to his native land; and his hopes now are to "heap rich in four more years, and then make one bee book for my own country."

his customers preferred comb honey not made on foundation sheets or even starters.

One thing sure, his honey is sought for, and his success as an apiarist is attested by his snug bank account and good credit at home.

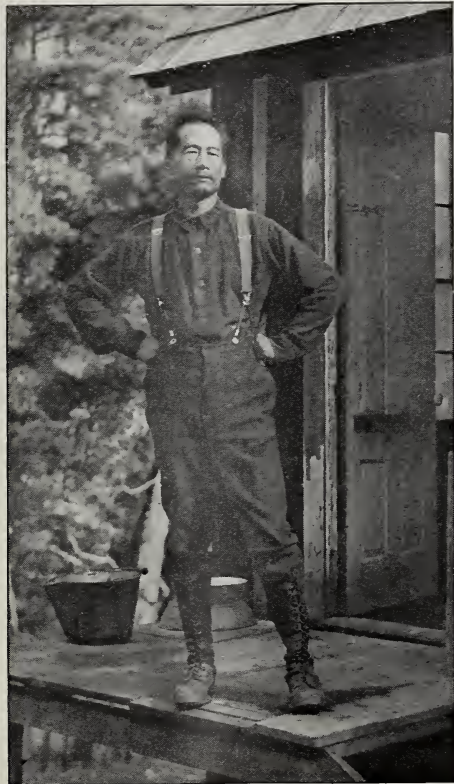
I have given your readers the facts as I got them. Some of his ideas are new to me, but may have been tried and exploded by the older ones of the fraternity.

Ling has had no experience with foul brood, but believes an ounce of precaution is worth a pound of cure, so he has buried in a near-by mud-hole a sack containing rock salt and sulphur.

"Some bees there all the time in warm time," he says. "You see, you no let him start you no hab him—all same smallpox."

Ling is a typical mountaineer, as the many pelts of the mountain cats and antlers of deer he had attest. He escorted me down the mountain canyon after the sun had hid its rays from view.

Sam Ling is a native of the Flowery Kingdom. When but 13 years old he shipped before the mast and landed in England. His eagerness to learn, a peculiarity of his race, led him into many pursuits before he settled down in the Coast Range Mountains of California as a bee-rancher. He was first a photographic printer in the days of the old wet-plate process, and tells with pride of handling fifty frames in the sun at one time.



A CHINESE BEE-KEEPER WHO IS WRITING A BEE-BOOK IN CHINESE, AND WILL SHORTLY PUBLISH IT IN HIS NATIVE LAND.

Later in life he got the gold fever, and made his way to California, where he followed our coast from Lassen Co. in the north to Los Angeles in the south, prospecting for the yellow metal. He had no great success, so he went to abalone fishing on the rocks of the coast off Monterey Bay in California. It was here that he found an ideal spot for an apiary, and settled down after having circled the globe. He is a possessor of a home and two apiaries. He has no longer to seek for customers. They seek him, and

by mail correspondence he sends his comb honey to parts as far distant as Chicago. The summer resort of Pacific Grove takes the bulk of his crop, being some twenty miles distant. He is educated in his own language, and intends, when his fortune is made, to return to China, and publish a book in his own language on bees and honey. He has discarded his queue and blouse, and tries in all ways to be thoroughly American.

I left him as dusk approached, feeling proud of the fact that soon, through the medium of GLEANINGS, the views of his apiary would soon be flying to all parts of the globe, even to his home in the Orient.

[I am sure our readers will all be glad to make the acquaintance of Sam Ling, more especially as he will possibly be the man who will introduce modern methods to that great country that is just now beginning to awake from its centuries of little or no progress. There is a grand future before China, and such men as Sam Ling will unlock the door to a new and brilliant future. The Chinaman has in his make-up that which will make a fine bee-keeper, and there is no question that bee-keeping will leap forward with tremendous bounds in China if once introduced. All it needs is missionaries, schools, and colleges. Now that China is under the direct protection of the United States, England, and Japan, it will not be long before she will recognize and adopt the progressive ideas of those natural protectors. GLEANINGS desires to extend the right hand of fellowship to our new-found friend, and can only wish him Godspeed in the message he will carry back to his people.—ED.]

BEE-KEEPING IN IDAHO.

G. J. Yoder's Apiary; the Hives and Appliances he Uses, and Why he Uses Them; the Advantages of the Brush Sheds in Hot Weather.

BY E. F. ATWATER.

About eight miles northwest of this place is the home apiary of G. J. Yoder & Son, containing 200 colonies of bees. About half are under an Arizona-brush shed, while the rest are out in the open sunshine. Mr. Yoder is a veteran of at least thirty years' experience in Michigan, Indiana, Missouri, and Idaho—in fact, one of the most thorough, careful, and successful bee-masters to be found anywhere. Some time ago he described in GLEANINGS a method of fastening full sheets of foundation to three or four sides of the section, and also illustrated his bricks of candied alfalfa honey. This yard, the largest in this neighborhood, is located in a fair alfalfa location where a great many bees are kept; but, nevertheless, no one else in that vicinity gets such large yields per colony. Mr. Yoder has had an extended and varied experience with different hives,



AN ARIZONA-BRUSH BEE-SHED IN IDAHO.

and, as a result he has decided on a ten-frame hive containing shallow Hoffman frames, $7\frac{1}{2}$ inches deep, as the best size and style for all purposes in this locality. He has a few of the regular Danzenbaker hives, but his preference is as above.

This yard was equipped with the 4×5 plain section and fence separator, but they have been discarded in favor of supers containing seven single-tier wide frames to hold the standard $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ beeway sections and old-style separators. That is my

experience and my choice also. For the first time in thirty years Mr. Yoder was stung by a queen-bee last spring. The queen lost her sting, but continues to lay just as before—a rare experience surely.

The Yoder gable shingle lid is used on all colonies.

Another novel arrangement when considerable work must be done out in the hot sun, is a light sled-like box on which is mounted a large umbrella (like those used on delivery wagons), furnishing both seat and shade



A BEE-YARD AND BRUSH BEE-SHED OF ONE OF THE MOST EXTENSIVE BEE KEEPERS IN IDAHO.

in hottest weather, and easily pulled from hive to hive.

When a colony swarms, a solid division-board is slipped into the middle of the brood-nest of the old hive, and a queen is mated on each side. Both are allowed to lay until the opening of the second flow from alfalfa, when the division-board is taken out and one of the queens used elsewhere, as desired.

All swarms are hived on narrow starters in the frames, and full sheets in the supers. If the queen with the swarm is an old one a young laying queen is often run in with the swarm, in her place, to insure worker comb.

In regard to the use of two $7\frac{1}{2}$ -inch bodies, for spring breeding, Mr. Yoder seems to think that *one body well filled* with brood is better than the same or a greater amount of brood scattered through two bodies. That is also my conclusion with average Italian bees in comb-honey yards; but with some Carniolan blood I hope to secure stock that will be capable of filling a half more than the standard eight-frames with brood before the first flow begins.

We have a yard in a low valley location, about three miles north of the Yoder apiary, and no shade available. At our yard the heat is often oppressive; but when we come on to the "bench" we find Mr. Yoder at work under the brush shed, cool and comfortable. All colonies are faced south during winter; but in summer the increase is placed in a row under the north side of the shed, facing north.

Meridian, Ida.

[I have seen those brush sheds in practical use in Arizona. In a hot country where the thermometer goes anywhere from 100 to 110 in the shade, with an almost cloudless sky, these brush sheds are almost a necessity. Shade-boards, possibly, might afford relief; but the sheds are more convenient, and certainly more comfortable, for the apiarist. They are arranged to stand east and west, so that, as the sun rises in the east, and moves westward the bees are always in the shade.

In the illustrations here shown, the brush shed does not seem to have many bees under it. Perhaps early in the season it is not necessary to have them there.

The hives in the foreground, I notice, have all ventilating double covers. Such a cover is far better than a single-thickness board out in the open.—ED.]

THE PEARL AGNES BEE-HIVE.

BY PROF. EDWARD F. BIGELOW.

The Pearl Agnes hive was designed by me a few months ago, and has recently been placed on the market.

The body of the hive has five frames with a total comb capacity of five-sixths of two full-sized Hoffman frames—that is, each is exactly one-third that of a full frame ($16\frac{1}{2} \times 8$ inches interior). The frame itself has

somewhat the appearance of a large section $5\frac{1}{2} \times 8$ inches. It is supplied with full comb foundation, or with a starter across the end as may be desired. The length (8 inches) of these small sections is the same as the depth of the interior of a Hoffman frame, and the depth ($5\frac{1}{2}$ inches) is one-third the length of the Hoffman, so that three may be fitted into the length of a Hoffman, if placed side by side and on end.



FIG. 1.

The super is fitted with sections $2\frac{1}{2}$ inches deep by 2 inches wide—that is, one fourth the size of the Danzenbaker 4×5 section, and hence it may be used, if desired, in the regular Danzenbaker super as "toy" or "sample" sections (Fig. 2). These little sections, when filled either in the Pearl Agnes hive or the regular full-sized super, are convenient, dainty, attractive, and, to the young folks, "just too cunning for any thing." They may be used as sale samples, or novelties for the table, or as gifts to friends and



FIG. 2.

to visitors at the apiary. The fences of the super are in the same form, but of smaller size than the regular fences. The cover is shaped like a gable and roof, so that, together with the fanciful painting of the three parts in three different colors, the

whole has the appearance of a doll's play-house (Fig. 1). This effect is further enhanced by the feeding-bottle (with perforated cap) which extends down through the roof, and is of the proper length to project far enough to have the aspect of a chimney (Fig. 1). The inventor is in such hearty sympathy with Old Saint Nicholas, and a magazine of that name so full of good things for the young folks, that it seems eminently fitting that the honey-bees should get their presents of sweetness—a la Saint Nick—down the chimney!

The house-like appearance is further increased by a neat label on the gable end, in the place usually occupied by the attic window. The words on this label are,

THE PEARL AGNES BEE-HIVE

DESIGNED BY

EDWARD F. BIGELOW, STAMFORD, CT.

MANUFACTURED BY

THE A. I. ROOT COMPANY, MEDINA, OHIO

The door is a swinging wire screen, so that the entrance may be easily closed when the hive is to be carried from place to place for observation or experiment, and when the professional bee-keeper desires to take it to an outdoor apiary as an enlarged nucleus for breeding purposes.

In the invention of this hive I have had in mind several purposes.

1. To supply the educator with an inexpensive, attractive miniature hive, all complete with comb and colony by the manufacturers or by a large apiary. For demonstration in the yard it prevents the disturbance of a full-sized working colony. For the schoolroom it can be easily carried, taken apart, and put together, and yet it shows in miniature every thing that could be shown by a large hive, which it would be difficult or impossible to take into the schoolroom.

2. For the young folks a hive that will give them a start in the fascinating work of bee-keeping and observation, at a minimum of cost. To the large apiarist it is what the flower-bed or school-garden is to general horticulture or to agriculture. It is a sample. It shows the thing and gives the pleasure on a small, inexpensive, and simple scale. In floriculture or in vegetable gardening the child enjoys the small bed more than he would do if obliged to cultivate an acre, or even a market-wagon full of lettuce or radishes or popcorn. But before the coming of the Pearl Agnes hive there was nothing for the interested boy in which to keep a colony, except the regular hive used by the large apiary, which often contains a thousand colonies. This hive is, then, for the young folks a play-apiary, as well as a means of nature study.

3. For the commercial apiarist this Pearl Agnes hive is better in some respects than the usual "baby nucleus" for mating, because "the nucleus" is too small for that purpose, except with close and continued attention. It is a hive to be kept especially

for exhibition to visiting friends. This is better and easier than to disturb one of the regular colonies by taking it out. It may also become a source of income if it be purchased empty from the manufacturers, and filled with a complete colony and supplied to nearby teachers. As previously explained, the supplying of the hive thus filled would be equivalent, in number of bees and quantity of comb, to five-sixths of a two-frame nucleus. Simply put six of these section frames into two full frames, and fill the Pearl Agnes hive with five of these frames. But, better than all this, perhaps, to the professional apiarist, it solves the problem of plenty of queens in early spring, when queens are not only the most valuable but the rarest. Queens are most easily obtained in the latter part of summer or in early autumn. They are most needed in the spring. A ten-frame hive fitted with thirty of these large sections may be divided into six Pearl Agnes hives, and thus *five extra queens* for that one hive carried through the winter. In early spring all the thirty frames may be put back into the ten-frame hive, and there will then be *five extra queens* to be used when queens are queens.

The first Pearl Agnes hive was roughly made last autumn from my drawings and specifications, and was placed in the hands of my esteemed friend and honored fellow-townsmen Mr. L. C. Root, who is well known as the author of "Practical Bee-keeping," and an apiarist with an experience of almost half a century conducting apiaries of the largest size, and he is still an enthusiast with many colonies. He reports at the present writing (last week in March) that the bees have wintered astonishingly well (indoors) in this Pearl Agnes hive. I am indebted to him for the suggestion in regard to the possession of plenty of queens in early spring.

4. To the experimental apiarist, the advantages of the hive are so many and so important that I prefer to defer even suggestion in reference to them till later, when I may be able to announce and to illustrate some of the things that have been done, rather than not to predict what may be accomplished. I will merely advise the reader to procure one or more of these hives; and my assurance is that, if he will handle them, study them, and dream about them as much as has the inventor, some of the suggestions will come to him spontaneously, and thus give him all the charm and pleasure of original discovery. The results of such discoveries may add much of value to the apiarist as well as to the scientist. It would be, you know, difficult to play a game of chess through all its entrancing situations if the men were of full size. One can often imagine and theorize better in miniature, better with a plan than with the completed house, better with a map than with the country itself. Perhaps these advantages will be yours if you become an experimental apiarist with the Pearl Agnes hive.

It is not for me within the province of this

article to tell you what I think the manufacturers intend to do with this hive. But I will give you a small hint as to what I suspected was in the mind of one of the managers when he said a certain thing. From this I infer (and I "guess" that the inference is well founded) that they no more expect to make a profit directly from this hive than the fisherman expects to eat the chubby little "shiner" that he puts on his hook when he goes angling for pickerel. These shrewd manufacturers know that bee-keeping is fascinating, and that all they have to do is to get you started. Every thing else follows easily. So this hive will be put on the market at less than net cost, and in this laudable action the manufacturers will not be hampered by any patent to be taken out by the inventor. He has too strongly at heart the interests of apiculture as an educational factor.

But, to revert to the figure of the fisherman and his bait. The parallel is not quite true, and so far as it is inaccurate it is to your advantage. This "bait" (the Pearl Agnes hive) in itself is good, and the more freely it is offered (by the manufacturers) the more reason for your pulling it off the "hook," and taking it home with you—in fact, get several of the "baits."

The name, "Pearl Agnes," is in honor of the ten-year old sweetness-maker of the "B(igelow)-hive" in which I am writing.

MAILING AND INTRODUCING CAGES FOR QUEENS.

Precautions to be Observed; Dequeening and Introducing at One Operation.

BY E. R. ROOT.

As we are just now on the eve of a season when queen-breeders will be doing a rushing business, it may be advisable to make some suggestions that will be valuable alike to both the breeder and his customers.

The illustration shown on the next page shows very fairly the queen-cages used by many of the most extensive breeders in the country. They are all based somewhat on the principle of the three-hole Benton, particularly the small one. In this the end hole contains candy, and the other two are for the occupancy of the queen and her attendants. The hole or holes at the end opposite the candy end in the small and medium sized cages is perforated with small holes to give air to the bees whenever the temperature rises. When it falls they seek the inner hole, that is warmer and protected, next to the candy.

It is very important that the compartments to receive the food should be coated on the inside with beeswax or paraffine, and that the candy, when in place and nicely leveled off, should be covered over with a small square of foundation or a sheet of wax, or one thickness of paraffine paper. The object of these is to prevent the too

rapid evaporation of moisture from the candy; for the more moisture it can be made to hold and not "run" or become sticky the better it is for the bees.

In the cages used by the great majority of breeders a quarter-inch hole is bored into the candy-hole, which is likewise lined with paraffine, and filled with candy. This is for the purpose of introduction—the bees in the hive to receive the queen eating away the candy and finally liberating her; but if the cage has been on a considerable journey her majesty and retinue will have consumed a considerable portion of their candy, so that sometimes in a few hours the bees in the hive will release the new mother before she and her attendants have acquired the body odor of the colony. It then very often happens that she is balled and destroyed.

To prevent a too rapid entrance of the bees into the cage, a narrow piece of thin pasteboard, a trifle narrower than the hole, so that the candy is slightly exposed, is tacked over the candy in the end hole. The cage as thus prepared is laid right on top of the colony or between the frames. The bees, attracted by the candy, will eat away as far as they can reach, and at the same time gnaw away the pasteboard, which is soaked with the sweet. This latter operation requires from 24 to 36 hours of time. If, then, the bees eat away the candy in five or six hours, they are usually in a good mood to receive the queen when she finally emerges from the cage.

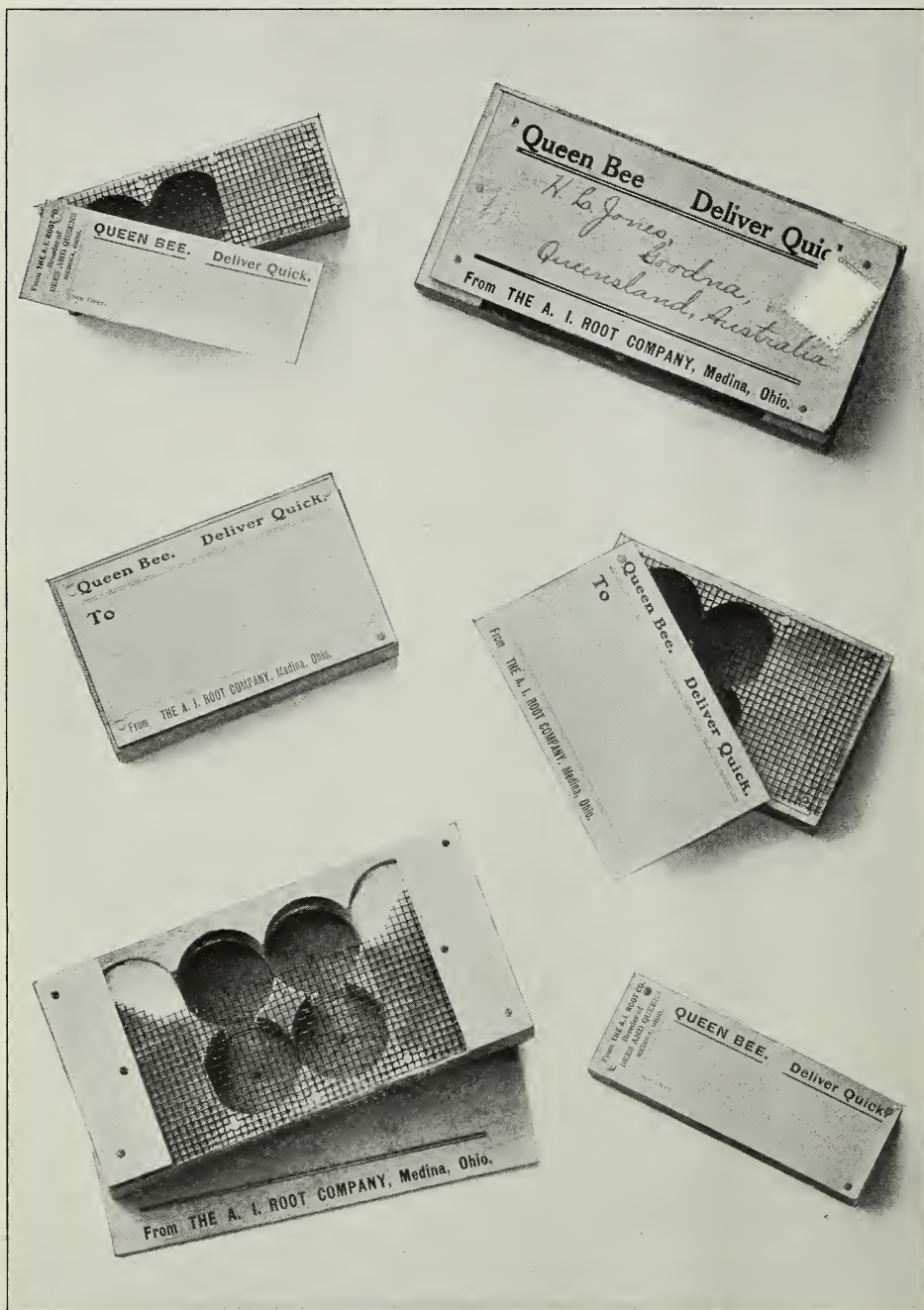
The cage as thus constructed is practically automatic after a postage stamp has been attached and the address marked on the cover. The recipient of the cage reads the accompanying direct ones, which simply means put the cage, after the cover has been removed, screen side down among the bees. Nothing further needs to be done, as the bees will take care of the rest of the work, on the principle that "you press the button, and we do the rest."

DIRECTIONS FOR INTRODUCING.

Before giving this queen to the colony be sure it is queenless. A stock that has been without a queen from 12 to 16 days—long enough so that there is possibly one or more virgins in the hive, will not as a rule accept an introduced queen. The colony should not be queenless more than five days, and to secure the best results one or two days are better. See that all queen-cells that may have been started are destroyed. To introduce with this cage, note the condition of the queen, and place cage on top of or between frames; if on top of the frames, put the wire cloth down next to the bees. The bees should gnaw away the pasteboard nailed over one end, eat out the candy left in the cage, and release the queen; but under some conditions they fail to gnaw the pasteboard. If they fail to do so in 24 hours, tear the pasteboard away and leave the bees to eat out candy. If the weather is cold set the cage right over where the cluster of bees is. Should queen and her attendants arrive feeble, or daubed up, release her at once among bees. If, after they clean her off, they ball her, return her to cage and introduce as explained. If she arrives dead, notify us and we will replace. If your bees are or have been robbing, you may not succeed in introducing. We do not guarantee safe introduction.

N. B.—Queens just from the mails usually look small and dark. After laying a few days they will improve.

As a matter of precaution, in the case of valuable queens it is advised that the cover of the hive be removed within 24 hours to



MODIFIED BENTON MAILING AND INTRODUCING CAGES.

see whether the bees are successfully gnawing away the pasteboard. If they are, let them alone and close up the hive. If not, remove the pasteboard, when the bees will soon find the candy; but in no case handle the cage with the fingers more than is absolutely necessary. Some strains of bees are very susceptible to strange odors; and if a queen has something about her different from the colony, that strange odor has a tendency to make them antagonistic. We always find it advisable, in cases of introducing, to handle any cage as little as possible, and then let it alone, leaving the bees to release the queen rather than attempt to do the work ourselves. The disturbance in opening the hive may put some colonies in a bad mood; and if there is a time when a colony should be in a perfectly normal condition, without disturbance, it is when the queen emerges from the cage among the bees.

It should be stated, and experience shows it in our own apiaries, that a colony just made queenless is far better than one that has been in that condition for ten days or two weeks, for the reasons given in the introductory sentence of the directions above. Indeed, we go so far as to remove one queen and introduce another *at the same operation*; and as a general rule we do not go near the hive until a day or two after the queen has been released. We never advise a customer to dequeen a colony and then send for a queen. Extended observation shows that this is a serious mistake. Even if a queen is sent promptly, the colony will be queenless four or five days, counting two days for the letter to go to the breeder, and two or three days for him to get the queen to his customer. During this time initial cells may have been started in the colony, and these have a tendency to make the bees less kindly disposed toward the freshly introduced queen when they have already laid plans for one of their own blood and their own raising. If a breeder is slow in making delivery the colony will be in the worst mood to accept a queen from Uncle Sam's mail-bags. A customer had far better wait until he has actually received his queen, then dequeen and introduce at the same time. If a queen arrives in the mails in good condition, it may be advisable to dequeen the colony for 12 or 24 hours, and then introduce the new one. I say it *may* be advisable, because I do not believe that any advantage will be secured.

Referring to the other cage in the other illustration, I may say that the medium size requires two cents postage, and the large size five cents. For cheap queens, especially those that go a short distance, we use the smallest cage shown, attaching one cent postage. For the average grade of tested and select tested we use the medium size. For our very best breeding-queens, and for all export work, we use the large size. But experience of late seems to indicate that a large-sized three-hole Benton, of the same proportions as the regular Benton, shown

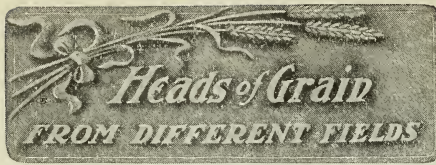
in the large illustration, is preferable for export. Just why this should be so, I do not know; but I know that, years ago, we secured a little better results with our big Benton in export mailing than we have been able to obtain with the largest cage shown. Part of this difference is due to the fact that the foreign countries are much more strict now with regard to the examination of all matter from the standpoint of sanitation than formerly. We positively know that many of our best queens *en route* for export have been fumigated to death, because the cages containing them were put in the sulphur-room along with other mail matter. The customer, on receiving the queen, discovers nothing unusual, and no odor, and complains to the sender that the bees and queen were all dead. Investigation reveals the fact that fumigation was practiced with the inevitable results as stated.

I do not know how we can protect ourselves against this in all cases. Government officials — especially in foreign countries — are very often officious in the extreme. A simple request *not* to fumigate may be an invitation to do the very thing we expressly desire them not to do.

There is one other cage (not shown in the plate) that we have used; namely, one on the same general principle as the large Benton, except that it is a little longer. In the center there is a compartment for holding a very small piece of sealed comb honey. This is secured in place by melted paraffine. The object of the honey was to give the bees a food that they could utilize, *providing* the candy should become hard during shipment; but the general results seemed to be no better than where candy was used alone for the purpose.

Dr. E. F. Phillips, of the Department of Agriculture, when I saw him last, strongly advised the regular Benton cages, pure and simple. Those shown in the illustrations are *modified* Bentons. The arguments presented by the doctor seem to indicate that the Benton original models are ahead of the "improved" form for transmission through the mails. I grant that this is probably true; but customers all over the country, as we find them, seem to want their cages covered with wire cloth to render observation easy, and at the same time adapted for introducing. We have modified the Benton to suit conditions of our trade. I believe, however, the regular Benton, as now made for the government, will accomplish introduction the same as the regular cages, but without the wire cloth, in order to make a warmer cage. It will be admitted, perhaps, that the wire meshes make an excellent radiator of heat and a conveyor of cold from without.

We shall be glad to receive suggestions and criticisms from our subscribers; for on the successful mailing and introduction of queens depends in a great measure successful requeening with new and desirable traits.



THE THREE-COMPARTMENT MATING-BOX; A REASON FOR NOT USING IT.

I have read with interest what has been said by both Dr. Miller and Editor Root—see pages 18, 140, 199. There is one point left out. A swarm or nucleus will always cluster near the entrance. This is particularly so of a nucleus. In the three-compartment mating-box the one real good point is lost, for this is the way they will cluster—see No. 1.



In the two-compartment or twin box the same is true if the entrance is placed at the ends as No. 2. With the entrance placed as in No. 3 the warmth of the division-board, together with the opposite effect produced by the cold, causes the bees to form nearer a sphere of the two clusters. This is the only way I have been able to secure the desired results, and that only in part. Say, doctor, "if I could get you out alone I'd have it out with you." I hate to be a second party against you, but I could not let this go by unnoticed. Surely you will pardon me this time. A. K. FERRIS.

Madison, Wis.

[Mr. Ferris hits the nail on the head. So, Dr. Miller, your idea of a three or four compartment mating-box goes glimmering—that is, providing Mr. Ferris is right, as I am satisfied he is.—Ed.]

WHAT CAN BE DONE WITH GOOD COMBS CONTAINING SOUR HONEY?

Will you tell me what to do with a lot of combs containing sour honey? My husband had 108 colonies one fall, and just half that number in the spring. This was the winter when many could tell the same story, and many fared still worse. The frames left contain good straight worker combs. I could make wax of them, but do not want to unless necessary. Will it do the bees any harm to put several of these sour moldy combs in the hive at once, so that they might be cleaned up? or would it be better to put them out in the yard when the weather is right, and let them work on them as they would on other combs? M. L. P.
Syracuse, N. Y.

[Combs containing sour honey are a very undesirable asset in the bee-yard. If only slightly acid they may be given to the bees in the brooding season; but even then there

will be some risk. A better way is to uncap and extract, and if the honey is very sour make vinegar of it. If only slightly soured, boil it till the acid taste or smell disappears. It may then be given to the bees as a stimulative feed. But if the honey is quite sour, no amount of boiling will make it sweet.—Ed.]

BEEES WITHOUT A HIVE FOR YEARS.

Mr. Samuel Simmins, on page 86, speaking of visiting a bee-keeper once who had some hives on some strips of 1×2-inch timber up on stakes, and without bottom-boards, reminded me of a colony of bees I saw on Lano River, in Kimble Co., in 1900. These bees were hanging from an overhanging ledge of rock, about forty feet from the ground, and about that far from the top. Some old settlers in the neighborhood told me these bees had been there for a good many years, and no one had succeeded in getting to them to rob them. But the strangest thing about it was that they had gone through some pretty bad winters. They were sheltered only on the north side, and overhead. The overhanging rocks sheltered them from the sun as well as the rain; so it doesn't seem so strange that those bees Mr. Simmins writes about should go through minus a bottom-board when these others stayed for years right "outdoors." It is strange, after all, what a bee can live through sometimes, and at other times will die with the best of care. It is true that our winters here are mild compared with the winters further north. We always winter on summer stands in single-walled hives; but we do have some real cold weather sometimes, but it doesn't last long.

A. A. ASHLEY.

Brownwood, Texas. Feb. 2.

THE MARBACH METAL-SPACED FRAME.

While you have not asked for any praise or criticism I am going to take the liberty to say a few things concerning the Marbach metal-spaced Hoffman frame. The frame is certainly unique, and the workmanship and the material used are perfect. But there are two objections.

First, I will say that every spring I thoroughly clean all top-bars and rabbets from accumulated propolis, using a scraper and choosing a warm day; and as the ends have the most propolis, those metal strips that pass over the top-bars would prove a nuisance, and prevent one from doing a swift and clean job. I don't want even any nail-heads on top of the top-bar.

It is surprising how quick and nice a job a person can do with a proper scraper in cleaning off a set of frames with short rests, rabbets and all, where the propolis is warm and sticky, and it pays all through the season's work.

If the tin spacers could be used without extending over the top-bars it would be better; but they would not be so substantial. But I don't think they will prove substantial any way. I believe that, after they have

been used for some time, and much propolis has accumulated, and is stiff and hard, the fastenings will give way before the propolis, leaving the tins loose and inaccurate. Then I would have to go clear back to town for some newsboy to swear for me.

Again, you can never push the propolis out of the bearings by applying pressure as you can with the V-shaped all-wood bearings of the regular Hoffman when the propolis is warm.

I don't believe they will ever crowd the all-wood Hoffman frames off the market, which goes to show again that new ideas and radical changes are getting very scarce.

M. A. GILL.

Longmont, Colo., Jan. 4.

[Your points may all be well taken. Only the experience of the season will prove their correctness. We have not as yet cataloged the metal-spaced Hoffman, although we have had an opportunity to do so, as the idea was brought out in our establishment before our catalog for this year went to press. We deemed it best to advertise them in the bee-journals, and test them thoroughly in our own yards.

The majority of bee-keepers, I think, do not scrape top-bars as you describe, although perhaps they ought to do so. But this is a matter also that hinges on locality and the strain of bees so far as their tendency to build burr-combs and deposit propolis is concerned.—Ed.]

A REPORT ON THE PLAN OF HIVING SWARMS WITH A MIRROR.

Mr. Root:—You ask, p. 1143, 1905, to hear from subscribers who have tried a mirror for hiving bees. I used a mirror successfully about 25 years ago in the manner described by Mr. Suppe. I have tried to hive bees about a hundred times on different occasions since with a mirror, and failed to make it work. On reading Mr. Suppe's way carefully it seems to me now that the cause of failure was due to the smallness of the glass. I used one 8×10, while the one I succeeded with 25 years ago was 18 inches square, or about four times as large. The success, then, seems to depend upon the amount of reflecting surface. A glass 3 ft. square, having 9 square feet of surface, would have 9 times the effect on a swarm of bees that one a foot square would.

WM. BELSHAW.

Lowell, Wash., Nov. 16, 1905.

[It may be that I am unduly skeptical, but I do not see how flashing the sunlight with a mirror in front of a swarm in the air can have any appreciable effect; but I do know that a spray of water can be used to drive it in any direction. In fact, I have repeatedly made the bees alight pretty nearly where I wanted. I would drive them to some particular low-down bush, then douse them with water until they began to settle. Wet bees will not fly very long. It is too hard work.—Ed.]

INTRODUCING QUEENS BY THE SIMMINS PLAN.

On page 69 the editor speaks of the Simmins "starvation method" of introducing queens. Last summer I used the method as described by Arthur C. Miller in GLEANINGS early in 1905. I ran my queens in just before dark. I had but one failure during the season. I consider it the safest way to introduce queens I have ever tried, and I have tried many. It is the quickest. Take a queen out any time during the day. Wait until the field bees are back in the hive at night, and you have just about a sure thing in introducing that way. E. D. HOWELL.

New Hampton, N. Y., Jan. 26.

A HIVE-TOOL MADE FROM A SAW-BLADE.

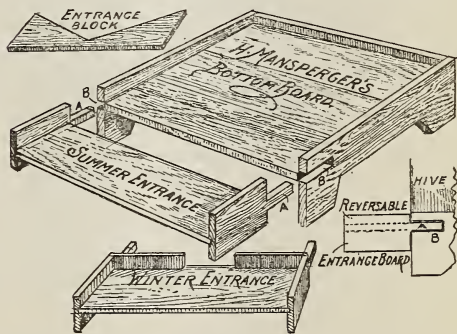
It is made out of a saw-blade 12 inches long, knife edge at A, tack-puller at B, screw-driver at C, hammer at D, saw at edge E, and chisel or gouge at F.



What are the objections to a brood-frame hanging in the hive crosswise?

A BOTTOM-BOARD HAVING AN ADJUSTABLE ENTRANCE ATTACHMENT.

Please say what you think of this bottom-board with the reversible alighting-board. This gives a deep entrance in summer; and by reversing you have a small entrance and a deep space under the frames. The bottom-



board proper slopes from $\frac{3}{8}$ to $\frac{7}{8}$ inch. This alighting-board slips off when moving, and a screen slide, made to fit, takes its place.

Lewistown, Mo.

H. MANSPERGER.

[The arrangement of your bottom-board is very similar to the one that was advertised in the Root Co.'s catalog, except the detail of construction, which is a little different. I can scarcely see that it is any better or worse, so far as handling is concerned, but it would be more expensive to make.

Frames should always be at right angles to the entrance of the hive, so that, when the hive is tipped to let water run out at the entrance, the frames and foundation in sections will hang plumb.—Ed.]



And Jesus went about healing all manner of sickness and all manner of disease among the people.—MATT. 4:23.

His disciples were a hungered, and began to pluck the ears of grain, and did eat, rubbing them in their hands.—MATT. 12:1; LUKE 6:1.

I told you some days ago that I loved working in my little carpenter shop down in Florida, because Jesus was a carpenter in his early days. The question may sometimes arise as to what his occupation was after he gave up carpenter work and until his death. I suppose the answer would be, of course, primarily preaching the gospel. But there is another occupation that kept him very busy indeed. Our first text tells us it was healing all manner of sickness; and the record that we have of that beautiful pure life informs us that his work on earth was to help and cure all who were sick or suffering in any way; therefore if we wish to follow in the footsteps of the Lord Jesus Christ we ought to make our business, or a large part of it, in life to alleviate sickness and pain. I was going to say "and death;" but death will come to us all. But, even though that may be true, it is in the power of humanity to do much to alleviate the *pain* and *suffering* that usually come with death.

It has rejoiced my heart in the past few days to see how our whole United States has dropped everything, and it would almost seem as if it had *forgotten* every thing, in its readiness and willingness to help the destitute and suffering in that ill-fated city far away on the Pacific coast. I have been wondering if that great calamity would not arouse some of us and help us to get over the craze that seems recently to have gotten hold of our people to rob our fellow-men, or, to make it more *direct*, to rob the people who *pay* our taxes.

To get back to our subject, there *are* quite a few noble men and women in our land who are doing much to relieve sickness and suffering by applying their vigorous minds to this problem of getting well and keeping well. One of the foremost in this line is, to my notion, T. B. Terry, of Hudson, O. You who have read his potato-book and strawberry-book, and "Our Farming," know something about how this man by his vigor and energetic way made a poor farm in Northern Ohio yield up its treasures of potatoes, wheat, and clover; and the strawberry-growers have read the story, and been benefited by the same vigorous way in which he taught us how to grow *more* (and better) strawberries, and with *less expense*, than the world ever did it before.

Well, after many years of teaching and preaching (yes, a lot of Bro. Terry's teachings are real *preaching*) his health failed. As he was getting good pay for traveling, and talking at farmers' institutes, it was an important matter for him to hold out, and so he consulted some of the best and wisest physicians in the land. But his troubles seemed to be one of the hard cases to manage. I remember a despondent letter he wrote me wherein he despaired of ever being well. I did not know how badly off he was, however, until yesterday, when his good wife told me the doctors said at one time he could not live more than about three weeks. Well, T. B. Terry did not propose to die and give up his work right in the prime of life, even if the doctors did say so. He went to studying over the matter, and experimenting. He went to digging down into the whys and wherefores and the causes of things (just as he did with potatoes and strawberries), and God has blessed his efforts. Why, it makes me think of that old favorite text of mine—"knock, and it shall be opened unto you." Some of my good friends may say I have no authority for applying it to potatoes, strawberries, and good health; but I am *sure* the great Father is not displeased, even if we do apply it in any way. Terry's digestion was out of order. He knew that. And there was kidney trouble. His experience reminds me a good deal of Dr. Salisbury's early experiments. Dr. S., however, turned his attention to lean meat while Terry's investigations took a different line. You know how often of late I have spoken of "God's medicines." Terry was full of faith that God's remedies were infinitely better, more natural and proper, than the stuff in the drug-stores, or even the medicines that most of our leading physicians are recommending and using. I think one of his first attempts was in *chewing* his food very thoroughly. On page 236 (GLEANINGS for Feb. 15) he has told you something of what he has done. I was so much impressed with that account that I told Mrs. Root I was going right over to visit friend Terry as soon as I got home, and I was going to beg the privilege of eating a meal of uncooked food with him. May be I had better tell you about that visit.

I found Mrs. Terry a perfect picture of health, out in the front yard; and as we started to go into the house I stopped with an exclamation of surprise. They have recently put in a sort of bay window. The middle pane of glass is, perhaps, three or four feet wide, and five or six feet long. In front of that sheet of glass was the finest begonia, covered with bloom, I ever saw anywhere. Beside it were geraniums and other plants that out-rivaled in thrifty luxuriance any thing I ever *saw* before. There was not a wilted leaf in the whole collection. Not a leaf had a dark color, nor was it shriveled around the edges; and all their house-plants, for that matter, were just that way. I have my reasons, as you will notice later on, for thus speaking of the house-plants.

Pretty soon Mr. Terry himself came out, bareheaded and in his shirtsleeves, although it was a cool April morning. Said shirtsleeves, I found out, later on, had no flannels nor any thing else under them. A very thin cotton shirt was all that covered his arms and chest; and my old friend who was so near the grave five or six years ago was one of the best specimens of well-developed physical manhood I ever saw. He was just like the begonia and the geranium. He asked me if I would like to take a wrestle, and then he told me to feel of the muscles of his arms and legs. I tell you, my friends, there were many "happy surprises" during that visit of three hours. He has developed like a prizefighter—not so *much* flesh, however; and when I felt of the muscles of his arms it reminded me of pressing on an automobile-tire after you have pumped it up *good and hard*. There was not a bit of yield. Now, this beautiful physical development—this picture of health and strength—came largely from his way of dieting. I am sure you will be patient with me if I go over the minute details of that visit.

We talked, and answered questions for fully three hours, with scarcely a let-up. Even while I was taking my meal of uncooked food I kept talking. Terry says that is not the best way, however; for if your mind is on something else you will forget and let that delicious uncooked food slip down your throat before it ought to go down.

He has two meals a day—breakfast at eight and dinner at five—nothing whatever between meals—not even fruit; and no water or any other liquid until two hours after each meal.

The first course of this uncooked food was Pettijohn's rolled wheat. Terry says he has a teacupful at a meal, and so I took a teacupful—just a cent's worth. Then you want a good allowance of butter, say about a cent's worth. Now, do not touch the fruit or nuts until you are through with the first course. Take a little butter on your spoon, then a spoonful of rolled wheat. When you begin to chew, it will seem like a dry ration. But do not yield to any temptation to take a bit of tea or coffee, nor even water or fruit—not just yet. Chew those dry flakes with the butter until the motion of your jaws prompts a secretion of saliva. Your mouth and your food will then be moist enough. Now take another spoonful, and keep on chewing. If I am correct, your grain ration is the most important part of the meal, and you want to take thirty or forty minutes to eat that teacupful of wheat.*

*Our second text tells us that the use of uncooked food is so old that Jesus' disciples used it; and while we are not told that Jesus himself ate of it, I think it is quite likely he did. Before roller mills were invented, or perhaps mills of any kind to make the beautiful fine flour and snowy-white bread (?), people ate the wheat just as God made it, and it may be worth our while to get back in some things to the simple ways of humanity in ages past. I suppose wheat nicely cleaned would answer in place of the rolled wheat; but the rolling process greatly assists chewing it, until it is in its very best state to be assimilated by the digestive organs.

Now, do not get impatient and say you have no time for such "folderol." When you need a doctor, and have to stay in bed, it will cost you more than an hour for each of the two meals. Chew the wheat and butter until they are just a creamy liquid. Of course, your teeth should be in good shape. If they are not, go to a dentist and have them fixed. By the way, I am talking to *sick* people now. "Those that are whole need not a physician," as Christ told us. If you will be patient, and do just as I say, you will find this part of your meal very enjoyable.

After you get done with your grain, take some nuts. The nuts supply the place of meat. They furnish the protein, if I have got it right. Chew the nuts in the same way. I like peanuts properly roasted. May be Terry would say that is cooking. He prefers the meats of English walnuts, and he grinds them up in an Enterprise grinder—the same kind we have described for grinding beefsteak; and when he goes out on a trip he has just a can of ground meats and a package of rolled wheat; and he can travel on the Pullman cars or any other kind of cars and have his lunch at the usual time and at an expense so trifling and insignificant that the most poverty-stricken person in the land can not urge that it is beyond his means.

After the careful and deliberate chewing of the grain and nuts, you can have all the fruit you want—any kind of fruit so it is well ripened and easy of digestion. I told friend Terry that bananas did not agree with me. He said it was because I did not pick out those that are perfectly ripe—the ones that are black all over, and which you can usually get at a low price. As soon as he suggested it I remembered I knew it before but I had forgotten it. Many kinds of fruit are not easily digested until they are so dead ripe they come pretty near decay. Please do not understand that I recommend decayed or rotten fruit by any means. One spring a wagon came along when apples were very scarce, and the driver had some Fallawater apples that had been kept in cold storage. They were so mealy one could peel them just as you would a very ripe peach; and the apple would almost mush up in your hands. When I could not eat ordinary wilted or tough apples I could eat these in any quantity, and feel happy. Look out for green fruits or wilted strawberries.

By the way, you had better work into these things gradually. My impression is that anybody can eat and digest the rolled wheat I have described, but I may be mistaken. With nuts or any thing that your stomach is unused to, take only a little at first.

I believe that the fruit I enjoyed most was some uncooked dried peaches. Instead of cooking these dried peaches they were soaked for 48 hours in water. I am sure this fruit must have been ripe and mellow when it was dried or evaporated, because the peaches seemed almost equal to the ripe

fruit right from the tree. I was "out of sorts" when I visited friend Terry—in fact, I had been having distress in the region of digestion for two or three days. I made a very good dinner as above, and nothing more that day except at the usual supper hour, 5 P.M., when I ate a little rolled wheat in the way I have described. That night I slept soundly from ten o'clock till daylight—something I had not done before for months. To tell the truth, I have been working toward this sort of diet for some time back—that is, when I was at home so I could do it conveniently.

I wish you could have heard all the questions I asked friend Terry, and his answers. I will go over some of them. You can use olive oil, if you like, in the place of butter. Terry uses it considerably. I suppose a little good cream would answer. You do not want milk nor any other liquid that will dissolve the rolled wheat; for if you do, the chewing will not be necessary; in fact, without the long chewing you do not get the secretion of saliva, and this is the great secret of good digestion. This saliva *must* not be washed down your throat with tea, coffee, nor even milk nor pure water.

So many people are accustomed to drink something at their meals it may be a hard matter to get them over it; but just try it and see if your digestion is not better with no liquids until two hours after your meal.*

When I first arrived I greatly enjoyed a brimming glass of rain water kept in a big stone crock since the last heavy rain. When I suggested that it was some trouble to be on hand to catch this nice rain water Mr. Terry said he usually caught enough to last three or four weeks. Mrs. Root thinks even rain water would become flat and insipid by being kept that length of time. Well, it is not a bit flat for me—just what I like. Like myself, friend Terry prefers his drinking-water at pretty nearly ordinary temperatures—neither hot nor cold. I think *sometimes* that a drink of hot water is very beneficial; but I seldom care for it nowadays.

Now about the plants in those rooms and the secret of it. Mr. Terry has been just as hard at work to secure pure air, comfortably warm, as he has to secure the best food in just the right condition when he wants it to eat. The air comes from outdoors under

the porch. In order that the wind (and sometimes snow) may not blow in he has it turned at an angle and then it goes into a cold room. From this cold room it is admitted according to the weather into the flues in the furnace. When it is perfectly warm it goes into the rooms above, and is made to pass over a series of shallow pans of water. This air, before it is used by the plants or people, takes up all the water it needs—about 20 quarts a day; and these shallow pans have to be filled up almost daily. When I suggested it was considerable trouble, friend Terry said, "So are doctors and drug-stores trouble. Which will you take?"

In our little greenhouse at home I have what we call a hygrometer. Well, ever since I got it I have been surprised to see how the quantity of moisture changes in my greenhouse. No wonder my plants suffer sometimes from over-dampness, and then, worse still, from an atmosphere that the instrument records dry or *very* dry. While admiring the plants and their beautiful growth, without a sickly-looking leaf, friend Terry remarked: "The conditions that are needed to make those beautiful plants are also just what is needed to make a beautiful woman;" and, if I remember correctly, he laid his hand playfully on his wife's shoulder, or may be he just pointed to her; and there is no mistaking it—Mrs. Terry is just as much a picture of health as the plants she lovingly cares for.

Perhaps you are tempted again to say, "Oh! we can not fuss with the air in order to keep it always just so—neither too dry nor too damp. But, my friend, you do "fuss" when you go to sanitariums or consult expensive doctors; and a good many times you do not get the health either. Now, Terry has got these three most precious of God's gifts up to a point of perfection and scientific accuracy that I never dreamed of before—food, air, and water. Furthermore, in his experiments and investigations he has succeeded perfectly in cutting off the fearful waste of fuel that goes on in the ordinary home. Why, my dear friend, I am pretty sure I could cook *your* dinner with the heat that comes out of the top of your chimney every day of your life. With some of the arrangements for warming the home the dinner would be burned up and spoiled if set over the chimney before it would even cook on top of the stove. Seventy-five per cent of the real benefit of your fuel often goes out of the chimney.

Well, I went down into the basement (in fact, I went all over the house from garret to cellar); and while there was quite a little fire in the furnace, the sheet-iron pipe that goes into the chimney was not even warm.

"Why, friend Terry, your chimney is of no use. The gases from the consuming coal can not rise unless this pipe is warmed a little."

"Not so, Mr. Root. The gases from hard coal are lighter than common air, and will go up when perfectly cold. I have worked at this thing a long while to make the coal

* Perhaps I should mention here, that, like Dr. Salisbury, he recommends that no liquid be taken—not even a drink of water, within half an hour of the meal ahead of you. Drink all you want, and as often as you want, and the more the better, within the bounds of reason, from two hours after eating until half an hour before eating again. In order to do this, be very careful not to sit down to any meal when you are very thirsty; and to avoid this, do not forget to drink all you want at least half an hour before each meal. Several times lately I have found it hard to go without a drink at mealtimes because I had forgotten to quench my thirst half an hour before. If you have fruit or very juicy oranges at the close of your meal, this in a measure takes the place of water; but do not take any thing that would prevent nature from furnishing that life-giving saliva that comes by working the jaws, and which is the proper and natural moistening of the food. For the same reason do not eat your uncooked sauce, or fruit *with* your wheat.

give us every bit of the heat, and not waste a particle."

Besides saving all the heat, he has a very neat and tidy arrangement for sifting the ashes so that no *unconsumed* fuel goes out on the ash-heap. These things I have mentioned are all described in his articles in the Philadelphia *Practical Farmer*.

He has a sanitary closet near the furnace, to be used only in bad weather, and which he says is far ahead of any of the water-closets, and I have no doubt of it.

Now, there is one other exceedingly important point to be touched on before I close. Friend Terry is an earnest student of physical culture. He has books and magazines to keep him thoroughly posted on all these points I have mentioned. His wonderful development of himself, especially that hard firm muscle, comes, perhaps, largely from a *systematic* course of exercise and drill. He makes it a point to walk at least four miles a day in the open air. You remember what I said about my two-mile walk along the Gulf in Florida. His articles in the *Practical Farmer* have brought him a large correspondence, and he is constantly receiving reports from those who have followed his teachings, and he knows pretty well how it works with the average humanity. All this work is done entirely without pay. The only pay he gets, if I am correct, is what the *Practical Farmer* pays him for his weekly writings.

In winding up I wish to tell my good friends at Dr. Miller's that there is a strong prospect that, in the near future, I *may* dispense with my fur cap entirely—at least for a whole summer. Let me see. A few months ago I think I said I would not only give a thousand dollars, but I would give every thing I have in this world (except Mrs. Root) for the physical vigor and muscular development of the young man who was poling the boat during that tremendous cold north wind. Through a kind Providence that prayer *may* yet be answered, for it *was* a sort of prayer. And with still *another* prayer that what I have just written may bring health, new life, and happiness into *many* homes I still remain

Your old friend

A. I. ROOT.

The above was submitted to Mr. Terry, who adds:

The warmed air from the furnace comes in through humidifiers of our own make, which stand over registers. It takes from five to ten minutes a day to fill these, and that is all there is of it. The working is ideal, and entirely automatic. The colder the air that comes to the furnace, the more water it needs to make it natural and right when warmed up to 70 degrees in rooms above. In zero weather about 50 quarts are taken up by air that passes over it—taken up *cold* entirely; in mild weather about 20 to 30 quarts, the amount varying between 20 and 50 quarts, according to outside temperature. There is never any steam on the windows, never any excess of moisture, nor any shortage. Not a door-panel in the house shrinks. The piano keeps in perfect tune. Is it any wonder that human beings do too? The conditions as regards moisture are simply ideal every single hour of every day. We beat nature outside, and the air is also as pure, within one-hundredth part of one per cent, by actual test, as it is outdoors. But that is another matter. It is almost free from dust.

One other point, please: We use the closet in the cellar *every* day all winter. It is not only for bad weather, but for good, whenever there is a steady fire in the furnace or grate, and it is more comfortable to go there than outdoors—in the night, for example. We are still using this closet now, May 4. No trace of odor can possibly get out into the room. It all goes up the chimney.

T. B. TERRY.

LEMONS FOR THE CURE OF CONSUMPTION, STOMACH TROUBLES, ETC.

The following comes from our good friend R. V. Murray, of Cleveland, who makes the pictures for GLEANINGS, or at least a part of them.

On reading the article in last GLEANINGS on A. I. R.'s use of lemons I thought perhaps some experiments that we were making would be of interest to some who might be troubled with rheumatism or stomach trouble. The authority from which the original formula came was one of the foremost doctors of Chicago (once in a while some good comes out of that burg), and the patient was one of the prominent members and an officer of the Young Women's Christian Association. The college secretary of that association obtained it from her, and she has handed it down to myself and others. She was first interested in the matter on her mother's account, she being very much troubled with rheumatism, and the result was so satisfactory in her case and others' who have tried it that I encouraged my own wife to undertake the same treatment.

Most people on hearing of the formula at once declare that it would kill them; but, to make the matter short, I will quote the words of the doctor: "If sugar is left out, no juice of any natural fruit, the lemon in particular, need be feared, no harm can come from it." The formula is as follows:

Take, for instance, a treatment of nine days, and in each case commence, with the morning of the first day, the juice of one lemon in as much water as agreeable—no sugar.

Second day two lemons, morning and evening.

Third day, three lemons, morning, noon, and night.

Fourth day, four lemons, and so forth, increasing one lemon each day. For instance, on the sixth day six lemons, dividing the time as nearly equal as possible.

On the ninth day, of course, nine lemons; then decrease in the same ratio till you get back to zero. After that, use an occasional lemon as one thinks it may be needed.

Some constitutions might require only a seven or eight day treatment. Eat during treatment as usual. The appetite is stronger, and the skin clears wonderfully, and the whole system is improved, and the bowels are much benefited.

R. V. MURRAY.

Cleveland, O, Nov., 23.

And here is something along the same line from the *Farming World*:

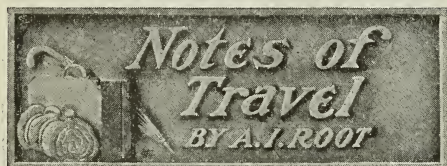
THE USE OF LEMONS.

A correspondent some time ago furnished the following recipe as a new cure for consumption: "Put a dozen whole lemons in cold water and boil until soft (not too soft); roll and squeeze until all the juice is extracted; sweeten the juice enough to be palatable, and drink. Use as many as a dozen a day. Should they cause pain or looseness of the bowels, lessen the quantity, and use five or six a day until better, then begin and use a dozen again. By the time you have used five or six dozen you will begin to gain strength and have an appetite. Of course, as you get better you need not use so many. Follow these directions, and we know you will never regret it if there is any help for you. Only keep it up faithfully. We know of two cases where both the patients were given up by the physicians, and were in the last stages of consumption, yet both were cured by using lemons according to directions we have stated. One lady in particular was bed-ridden, and very low; had tried every thing that money could procure, but all in vain, when, to please a friend, she was persuaded to use them in February, and in April she weighed 140 pounds. She is a strong woman to-day, and likely to live as long as any of us. When people feel the need of an acid, if they would let vinegar alone and use lemons or sour apples they would feel just as well satisfied, and receive no injury."

I am sure friend Murray is exactly right in saying *no sugar*. I have been in the hab-

it of using lemons for years, or lemonade, without sugar; but in my case, and I feel sure in that of thousands of others, the sugar will destroy all the virtue there is in the lemon juice. Sugar will ferment, or aid fermentation; whereas the diluted juice of the lemon can not.

The clipping from the *Farming World* sounds like a pretty big "dose," but perhaps it is all right. I would, however, commence, as friend Murray suggests, by using a little to start with, and more as your stomach seems to be able to use it.



THE CAUCASIAN BEES ON THE ISLAND.

I am well aware, dear friends, of all that has been said in GLEANINGS in regard to mixing Caucasian bees with those we already have; notwithstanding, I have decided to give my experience with them during the four months I was in Florida.

The two-frame nucleus that contained the queen was located before our cottage was built; and when we came to decide on our location, these Caucasians came pretty nearly in front of the door that we used most. As they had fixed their location, and were busily gathering pollen, we decided to let them remain, moving them a few inches a day until they were a little further from the door. Well, from first to last not one of these bees ever offered to sting us. I opened them early in the morning and handled them during the coldest weather we had. I bumped them around in all ways; but I never received a sting from one of them except when I pinched it. You might adduce from this that they would not defend themselves in case of attack from robbers. Now, this is not at all true. Like the gentle Italians, they were much better to defend themselves than the blacks or hybrids.

I had quite a little time with having my nucleus hives robbed; and sometimes, when the hybrids were about, the robbers would come around the Caucasians. But a bee would dart out and catch the robber on the wing, and roll him in the dust with such vehemence that they very soon abandoned that hive. When you open the hive of some strains of blacks and hybrids, you all know how they will dive into the cells and gorge themselves with honey, even sometimes uncapping the honey. I have been satisfied for years that this is a wasteful operation. At one time I had a colony of blacks fed up for winter on sugar syrup. They had been weighed, and pronounced O. K.; but just before winter set in I decided to put in an

Italian queen. The colony was very heavy, and they dropped from the combs on the sides and bottom of the hive so much I thought I should never find the queen. Every time I opened the hive they were so ugly that I was obliged to smoke them severely. Then, of course, they tore off the cappings, and gorged themselves with honey. I was four or five days in finding that queen, and began to notice wax scales on many of the bees, because of filling themselves so often with honey in this way on account of the disturbance I made to get that queen. You may suggest that they put the honey back into the cells after the hive was closed up. Perhaps they did, some of it; but before I got their queen changed it seemed as if half their stores were gone; and since that time I have satisfied myself, by carefully watching, that, every time bees gorge themselves with honey when you give them a severe smoki:g, there is a loss. Besides that, a colony that will do this when you go to extract, wastes its time, because it is often an hour or two before it gets down to business again. With Caucasians or gentle Italians there is no such waste. The Caucasians are ahead of any other bees in this respect.

When honey began to come in, February and March, as soon as I opened the hive the bees would dart right off from the exposed combs, making that peculiar "zip, zip, zip," as working bees always do when they start off for the fields in the morning. Not only this, but when I had the combs all out of the hives, and visitors were holding them several rods away, these bees would start off the combs and go in quest of honey. Italians may do this under favorable circumstances; but I can not remember that I have ever seen them do it. The Caucasian queen goes right along laying eggs, without paying any attention to what is being done. Of course, I handled the combs very carefully. They were such quiet, lovable little pets that it hurt my conscience to pinch or crush one of them; and a good many times last winter I thought I should be very glad to have again my old metal-cornered frames, especially for handling the Caucasians. I have never gotten hold of any other frame where I could set the combs into the hive quickly, and not pinch a bee. I decided in a very few weeks after getting to Florida, that, if Caucasians were even *equal* as honey-gatherers, I should regard them as a valuable acquisition.

Now, if you did not know A. I. Root you might think I was booming these new bees from selfish motives after what I am going to say. And, even though you do know A. I. Root, you might think he had got a new hobby in his head, and that his opinion is biased. Well, you can take the testimony for what it is worth. Here it is:

Before I had worked with the bees a month I called Mr. Shumard's attention to the fact that they were getting more honey according to the number of bees in the hive than any of the rest of our colonies. There were five colonies already on the island, one or

two of them almost pure blacks. A couple of hives of vicious hybrids and one very nicely marked Italians were in the lot. When the saw-palmetto came out the Caucasians were bulging their combs with honey just above the brood-nest; and this was the case when some pretty strong nuclei of apparently almost equal strength had to be fed to keep them from starving. In April they had so much honey if an extractor had been handy I would have thrown some of it out to give the queen room. When I took the queen to Florida, Ernest told me that she was probably pretty old. They feared she would fail soon, as she had been producing drones in worker-cells. This she did the whole winter more or less; and while I mention it, perhaps I had better add that I have considerable reason to believe these smaller drones reared in worker-cells are not good to fertilize queens. We did not get any laying queens until I could get this old queen to laying eggs in drone comb. While the hive was away ahead of all others in the way of gathering honey, we were constantly taking away brood for my experiments in trying to get queens with my 22 nuclei. When honey began to come in pretty lively she began to show greater ability in filling combs with eggs, until she finally outstripped all our other queens in this respect.

About this time I found queen-cells in the Caucasian hive; and when she began to lay eggs in them I removed enough brood to break up the swarming notion.

Now, this is all I know about their disposition to swarm. With the experience I have had I can not say whether they are greatly addicted to swarming or not; but even if this is true, I think that, by judicious crossing, it could be corrected. Neither can I say that Caucasian bees *as a rule* are extra-good honey-gatherers. I can only say this: I would rather have *that* queen to start an apiary than any other queen I ever before saw or had any thing to do with.

On my way home from Florida I talked with Prof. Phillips and his assistant, Mr. Leslie Martin, about the Caucasians. They very nearly if not quite agreed with me in all the points I have mentioned. Mr. Martin opened a hive of them in the house-apiary on their grounds in Washington; and in order to see whether these Caucasians were like my own on the island, I carried a frame to the open door. While standing there the working bees took wing from that comb, with that well-known "zip, zip," and went out at the open door. Of course, they did not take their bearings, so that, when they returned with a load of honey or pollen, they would go to the usual entrance instead of coming back where they took wing. Experiments at Washington indicate that young queens that meet drones of other races produce bees that are remarkably gentle.

Now, friends, how much time and money would it save the average bee-keeper if he could dispense with his smoker entirely, to say nothing about veils, gloves, and other fixings? My Caucasians never had a puff

of smoke, and the hive was opened one to four or five times a day. Every visitor who came to the island had to see the new bees that did not sting.

Perhaps it would not be practicable to expect to get an apiary of forty or fifty colonies that would never need a smoker at all; but I am pretty sanguine in regard to the matter.

Then, again, aside from the time saved to the owner of the bees, I am sure a race of bees that goes right on gathering honey when the hive is opened will accomplish more than those "idiots" that stand on their heads, stick up their stings, and buzz around your face every time you try to handle them.

Caucasians will rob like other bees; but I do not think they are disposed to learn to rob. In one case when I took some frames covered with bees to start a nucleus they found their way home and learned the trick of all joining in to carry the honey back to their old hive where it came from. They worked at this early and late with a wonderful alacrity just like any other bees that are robbing. But while robbing they manifested no disposition to buzz about your ears and threaten to sting.

At present we have no Caucasian queens for sale; and as you can tell nothing or practically nothing about their purity from the markings of their worker-bees, I would suggest that a queen never be called "tested," until her progeny is old enough to be tested for gentleness. If somebody should send for a Caucasian queen after what I have said in the above, and find her bees as vicious as other bees, he would have good ground to conclude she was not Caucasian at all; and, therefore, instead of testing the bees as they hatch out we should, in my opinion, wait till the workers are old enough to show their gentleness as well as their ability to gather honey. Such a tested queen ought to be worth a good deal more than common queens; for she would in reality be a queen that might be used for breeding—a tested breeder, for instance.

Let those who are in the queen business decide what such a queen ought to be worth. If I ever start another apiary I want a daughter of the queen I have been describing; and I think I should be justified in paying a good big price for a queen equal to the one I have been working with for the past four months.

STILL MORE ABOUT THE CHICKENS ON OUR ROBINSON CRUSOE ISLAND.

After neighbor Shumard fenced the chickens away from around the house they went off into the woods, laid eggs, and hatched chickens "worse than ever." One hen came out with 16 that she hatched "all her own self;" and when I came away they were so well feathered out there was very little danger of any being lost. They had no care whatever except to see that both wheat and water were kept in a place where the older fowls could not get access to it and take it

away from them. Another hen brought out 18, and I think she will probably manage that many just the same.

Now, I fear there are many of us who are so shiftless that we can not keep wheat or corn exposed day and night without trouble from *rats and mice*. There are no mice in Florida—at least I never heard of any; but there were a hoard of rats on the island when Mr. Shumard's folks first came; but he opened up such a warfare on them that now there is not one to be seen. You see, by being isolated on an island of your own, vermin of this kind can not come on to you from shiftless neighbors.

You may think I have devoted considerable space to this matter of chickens on the Florida keys; but I tell you, friends, it is a *wonderful opportunity* to have a place where you can raise chickens every month in the year, not only without an incubator or brooder, but without a structure or building of any sort whatever, and where the chickens can be weaned when three or four weeks old without a foe to molest them. I have taken all this pains to let you know that such a thing is possible, and that there are places on this beautiful world of ours where it has been and *is* being done.

DANDELIONS, AND WHAT TO DO WITH THEM WHEN THEY COME UP ON YOUR LAWN, ETC.

At a certain time in the spring our lawn is a bed of golden yellow for several days, and oftentimes it is humming with bees in a way that ought to make the bee-keeper's heart glad. But it is a posy-garden rather than a lawn, and Mrs. Root calls it a garden of weeds. Several attempts have been made in our neighborhood to dig out the dandelions; but our experiment station has discouraged such work by telling us that for every plant you dig out or cut off you will probably have half a dozen in just a little while, equal to the parent, or pretty nearly. Our Mr. Calvert gave the matter a test by keeping a gang of boys at the job for quite a spell on several different days. The result was, if I am correct, there were more dandelions on that spot a little later on than ever before. "Cultivation" seemed to do them good. I believe our experiment stations have decided there is no way but to turn the sod, grow a crop of potatoes or something else, and give careful cultivation until the dandelions are killed out. No plant will live very long—not even the dreaded Canada thistle—if it is cut off persistently just as fast as it shows a green leaf. In one case I killed out Canada thistles so they have not been seen since. For a period of three or four weeks I cut them off almost daily. Perhaps you are well aware that, down east, dandelions are grown as a choice article of food, and bring high prices in the markets. In Florida they are not seen at all; and although I sowed quite a little seed to test the matter, not a plant came up. Now, if anybody knows of any better way

to get rid of dandelions, we should be glad to hear about it. Perhaps I should add that, after the bloom is past, they disappear, blossoms and leaves, so that we have a pretty grassy lawn during the middle and latter part of summer. They are, however, on hand, and "up and dressed" before any thing else, every spring.

After submitting the above to Mr. Calvert he says a good deal may be accomplished by sowing grass seed very thickly over your weedy lawn and then making it grow vigorously by giving the lawn a good dressing of fine old manure well rotted. The grass will start with such vigor that it crowds out and often exterminates to a considerable degree even dandelions. Of course, the lawn-mower is kept going, clipping the dandelion-buds, just as they begin to push open, almost daily. A lawn-mower does not hurt the grass, but it injures almost all kinds of weeds. Mr. Calvert also suggests that the above is a pretty good plan to get rid of saloons—drive them out, squeeze them out, starve them out, by getting so many schools, churches, and Sunday-schools established that they can not exist.

Temperance.

HOW ONE WOMAN, ALMOST SINGLE-HANDED, MADE A TOWN DRY.

I suppose our readers, or a great part of them, remember the story I told in our issue for Dec. 15, with the above heading. Soon after its publication, while I was in Florida, the following letter came from Mrs. Florence D. Richards. It would have found a place here sooner had I been at home. The friends of temperance will surely be interested in something direct from this woman who has done so much for temperance throughout our land.

Mr. Root:—I have just been reading the kindly "write-up" from your pen. I wish to thank you for the many nice things you have said, and to tell you how much we appreciate men who take the brave stand on the whiskey and tobacco question you have for so many years. You have been quite an inspiration to me in my work, and I have mentioned your name many times in my speeches, telling these things as a memorial of you.

I think you have given me altogether too much credit, though, in your article, for I certainly did the least of any one there. I am afraid our people will think I have been boasting of my ability to accomplish things. Our good preachers all joined hands; our editors, both of them, came out boldly against the saloon, and the W. C. T. U. did the "house-to-house canvassing." I didn't do any of that, and the good men of the town did the *voting* when it came to that.

It was a few of our councilmen and the city *solicitor*, instead of the mayor, who stood for the saloons. Our mayor was one of the drest of dry men, and helped us bravely in our fight. I don't want any of the credit which does not belong to me, and I think very little of it does. Most cordially yours,

Leipsic, O.

FLORENCE D. RICHARDS.

In addition to the above, perhaps I should mention that several letters have been received, informing me that, instead of Leipsic being a town of six or eight thousand inhabitants, as I gave it, its population is only about half that.

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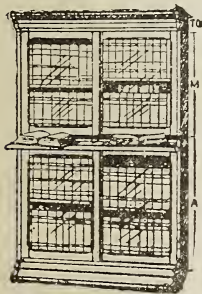
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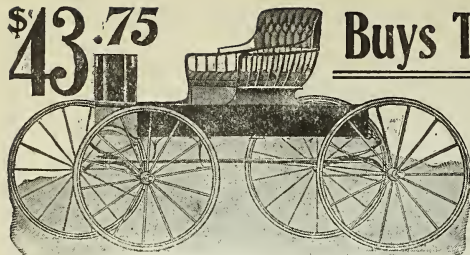
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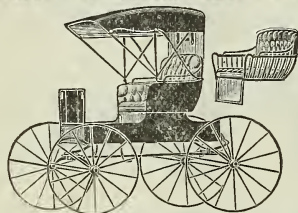
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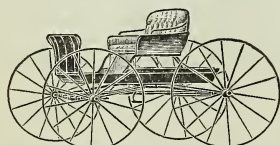


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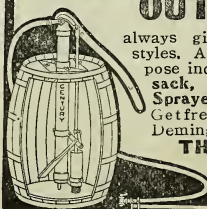
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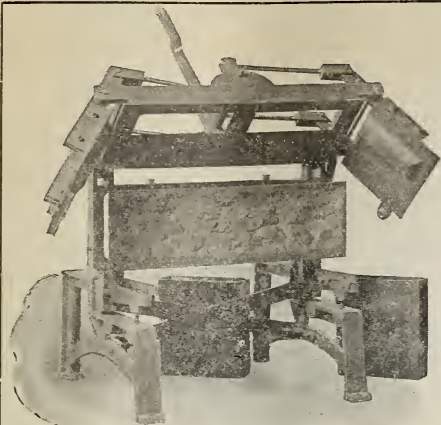
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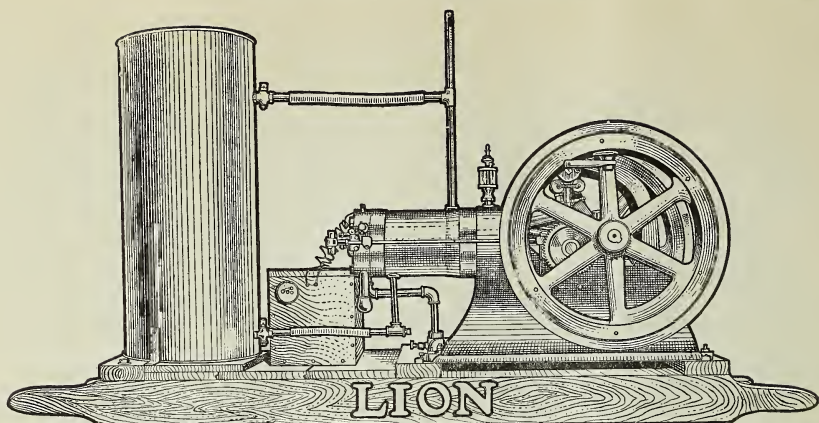
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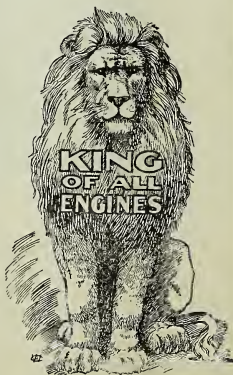
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It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN





I am The
Paint Man

Let Me Tell You the Price You Should Pay for Paint

See that house in the lower corner? It's an eight room cottage. I painted it complete in two colors, with trimmings, for \$9.60

I made the paint to order—shipped it without advance payment—paid all the freight—gave privilege of trying two gallons free—sold it on six months time—gave my 8 year guarantee backed by a \$50,000 bond. It was fresh

O. L. Chase Made-To-Order Paint

2 gals. free to try—6 months time to pay—all freight prepaid

The owner used the paint—wrote me he was tickled to death with the way it spread and the way it looked—recommended several of his neighbors to me—paid me for it at once.

That's the way it goes—this is only one customer out of thousands. What do you know about paint anyway? As paint makers themselves disagree, who knows? I disagree with all paint makers. Other paint makers say, "Pay me—and then paint." I say, "Paint—and then pay me."—then you are sure to be satisfied. My big Fresh Paint Book is Free—the finest Paint Book ever published—large samples of colors to choose from. Write for it today—now. I will write you a personal letter and tell you what you should pay for paint.

O. L. CHASE, The Paint Man,
Personal Office: Lincoln Missouri Trust Bldg.
ST. LOUIS, MO.

I painted that house for \$9.60—2 coats. Send me your name and address on a postal and I'll tell you what the paint for your house will cost.



Gleanings in Bee Culture, \$1.00	} Total . . . \$2.50
San Francisco Earthquake, 1.50	
Our Price for the Two . . . \$1.50	

The book we offer contains 500 pages with hundreds of illustrations. The author is the great historian, Charles Morris, LL. D. It is an accurate and authentic account of the greatest calamity that has ever happened in this country. Thousands of agents are now offering this book at \$1.50 cash. We include the subscription to GLEANINGS at the same price. Agents Wanted.

Compendium Subscription Agency, Bath, New York

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VALUABLE FOR

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LATHROP'S CHICK SERVER FOR FOOD OR WATER

Chicks cannot get in it or on it. Made without seams.

DEALERS HAVE THEM.
EACH, 25c. POSTPAID, 35c.
DOZEN, \$2.50

LATHROP MFG. CO.
80 Central Ave. Rochester, N.Y.

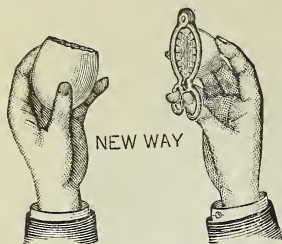
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Backed by 14 Years of Successful Use by poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. BANTA-BENDER MFG. CO., Dept. 23, Elgonier, Ind.

Every Family Needs

W. R. Hartigan's Improved Egg-opener



Prevents daubing, and pieces of shell in food. They are durable. Any person can open eggs with them. Nickel, 25c; silver, 50c. Sent to any address post-paid on receipt of above price in silver.

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MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

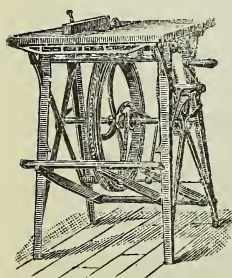
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Ashland, Ohio.



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Facts for Farmers

Send for free book 36-A. It contains telephone facts that are money-savers
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BARNES' HAND AND FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL
Send for illustrated catalog and prices. Address
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545 Ruby Street,
ROCKFORD, ILLINOIS.

BUFF ORPINGTONS!

I offer 12 eggs from purebred imported stock for \$3.00; 12 eggs from birds not especially mated, \$1.00. Thirteen early hatched chicks (cockered and 12 pullets) if ordered before June 1, \$12.00; from first-class laying strains.

M. H. WINEBRENER,

Importer and Breeder, Walkersville, Md.

JOSEPH HORNE CO.
Pittsburgh, Penn.

A New Safety Razor---The Christy Hoe
Price, Including Six Blades, \$1.50.

In designing the "Hoe" safety razor the aim has been to overcome all faults that other safety razors have, and so successful have been the efforts that a novice can shave the first time without practice, annoyance, or inconvenience.

Unlike all other safety razors, the "Hoe" requires no adjusting of the blades. It's self-adjusting; there are no troublesome springs, hinges, or screws to arrange. You can not put a blade in the "Hoe" wrong if you try to. It is easily done in a moment; there is no chance for a mistake.

In their efforts to make a razor that can be used with convenience, makers have overlooked one feature of the utmost importance, viz., the handle. This part of every razor on the market is a serious inconvenience in shaving, necessitating a cramped position of the hand at almost every angle.

The handle of the "Hoe" has the length necessary to be easily grasped and enable one to hold at the proper angle in all positions, and perfectly balanced.

Guard—This is one of the most important features of a safety razor, forming, as it does, the protection from the edge of the blade, all makers using practically the same form, and, until the invention of the Christy Comb Guard, no particular efforts have been made to perfect it. In the Christy Comb Guard the teeth of the guard point toward the blade. It is so designed as to leave the edge of the blade free with a clear space for lather to pass through upon the top of the blade just like, and with all the advantages of, an ordinary razor.

The heart and life of a razor is the blade. The process used in making the blades of the "Hoe" razor is absolutely new, producing blades of uniform temper, and lasting cutting quality, and is a wide departure from the usual method. Every blade warranted perfect.

The strop is an item to be considered in the cost of a razor, most makers charging 75 cts. to \$1.50 extra for the same.

Without extra charge, the case in which the Hoe Safety Razor is packed is supplied with an especially prepared strop, securely fastened to the top of case.

Special Notices by A. I. Root.

TWO NEW BOOKS BY THE O. JUDD CO.

The first one is entitled "Diseases of Swine," by Prof. Robert A. Craig. It is of the utmost importance that our farming community should be able to treat domestic animals, when diseased, in a sensible and scientific way; and it is high time that old notions and superstitions were set aside in favor of intelligent and scientific treatment. This book, just from the press, is fully up to the times, and ought to be in the hands of every family that keeps even a single pig.

The other book, "Profitable Dairying," is a volume similar in size; and when I tell you that a considerable part of it is devoted to giving a minute description of the far-famed model dairy farm of the Rev. J. T. Dietrich, near Philadelphia, I presume I have said almost enough in favor of the book. The farm in question was fully discussed in GLEANINGS about a year ago or more. Let me repeat briefly. On this farm of 15 acres, where, 20 years ago, it would not maintain one horse and two cows, there are now kept 27 dairy cattle in addition to two horses. Surely every one interested in caring for cattle can afford 75 cts. to get the full particulars of this interesting story about "high-pressure" farming. Each book contains nearly 200 pages. The price is 75 cts. postpaid. They can be sent from this office.

----"If Goods are Wanted Quick, Send to Pouder."----
Established 1889.

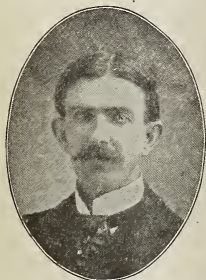
BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.



New Metal-spaced Hoffman Frames are Here in Stock

Conversation with Wilson

"Hallo, Mr. Wilson, how are you to-day?"

"Quite well, thank you, but I am a little tired. It is very warm to-day, and I mowed the lawn and all around the bees while it was cool. I thought I'd come over and chat with you while I rest a little. We were talking about Pouder's idea of doing all feeding in the fall. How does he feed?"

"Some time in September he removes the supers, examines each hive carefully, and marks on each hive the amount of feeding necessary. Then he places a Porter escape board on each hive, placing the bee-space down, which makes a double bee-space. This is to be left on all winter, and by placing it in position early it will be securely waxed, and he places an empty super on this. Now this makes an excellent place to set a Miller feeder, allowing the bees to come up through the opening for the escape. After removing the feeder he places a piece of section over the escape opening and fills the super with dry sawdust or any dry packing."

"How about the Hill device and the burlap?"

"Pouder is awful bitter against the Hill device. Says that method was put in type twenty-five years ago and has just stood that way, and he thinks the method has caused the loss of many a good colony. Says that with a board, sealed air-tight and with no upward ventilation, every thing will remain perfectly dry; while with burlap instead of a board every bit of packing will become white with frost in zero weather, and then when it moderates every thing becomes wet. I have noticed that when looking in the upper story of such a hive I thought the snow had drifted in, but further investigation showed that it was the condensed moisture from the bees."

"I had the impression that Pouder wintered his bees in the cellar."

"For two years he has wintered in the cellar, but he says he would prefer outdoor wintering if the boys would not molest them. He is located down town, and investigative boys will pry into things. Says he places them in the cellar on his birthday, December second, and sets them out on St. Patrick's day, rain or shine."

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

WALTER S. POUDER,

513--515 Massachusetts Ave.,

INDIANAPOLIS, IND.

Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the POINTS in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION:

W. D. Soper.....Jackson, Mich.
Bee and Honey Co.....Beeville, Texas
E. H. Taylor....Welwyn Sta., Herts, Eng.
E. Grainger & Co.....Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.

Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

Kretschmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Michigan Distributors

—FOR—

**G. B. Lewis Co.'s Beeware,
Dadant's Foundation.**

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service.

ADVANCED BEE-VEIL. Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

A. G. Woodman Co., Grand Rapids, Mich.

Dear Sir:—Your Advanced bee-veil just arrived, and is, as advertised, the best on the market. Find enclosure for ten more veils. Platteville, Wis., April 14, 1906. *N. E. FRANCE.*

A. G. Woodman Co.,

Beeswax Wanted.

Grand Rapids, Mich.

Bee-keepers' Supplies!

Lewis' famous "Beeware." Root's Smokers and Extractors; Dadant's Comb Foundation, etc.; Queens and Nuclei in Season, Large and Complete Stock; Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

"Mandy Lee" Incubators and Brooders!

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

C. M. Scott & Co., Indianapolis, Indiana

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Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

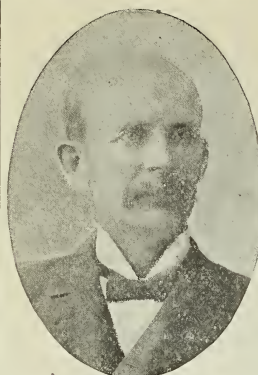
THE BEE AND HONEY CO.,

Will Atchley, Prop., Beeville, Bee Co., Texas,

If You Want Root's Goods

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below.

D. Cooley, Kendall, Michigan



Established 1881

YES!

Same Place 1906

THIS IS THE MAN WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year. ♣ ♣ ♣ ♣ ♣

Geo. E. Hilton, - Fremont, Mich.

Increased Business Compels Larger Space!

So we have just doubled our capacity in the building at 141 Ontario Street, where we carry a full line of

Poultry-supplies and Lewis' Popular Beeware

Catalogs on application. ORDERS FILLED PROMPTLY AT FACTORY PRICES.

SPECIAL OFFER ON BEE-SUPPLY ORDERS.—Until June 1, 1906, we will GIVE FREE on each order for bee-supplies amounting to \$10.00 or over, a choice of ONE of the following: A Bingham Doctor Smoker, a Bingham Honey-knife, or a year's subscription to the Weekly American Bee Journal.

BEE-SWAX WANTED.—28c cash or 30c in trade.

ITALIAN BEES in modern hives with select queens for sale; also pure Italian queens.

York Honey and Bee Supply Company Not Inc.

H. M. Arnd, Mgr.

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BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers



Pat'd 1878, '82, '92 & 1903

Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't *doub* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

T. F. Bingham - Farwell, Mich.

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. RANKIN.

Ask Lathrop

for Root's Goods
at Root's Prices

All kinds of Bee and Poultry Supplies.
Catalog, etc., on request.

Lathrop Mfg. Co., Rochester, New York
27 East Avenue

If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send \$1.20 to :: ::

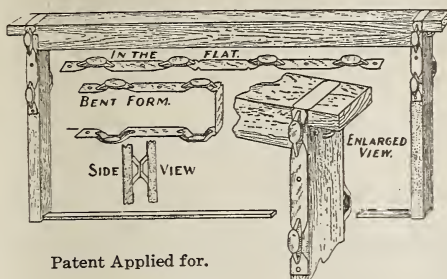
Prof. A. J. Cook, Claremont, Calif.

— FOR HIS —

"Bee-keepers' Guide"

Liberal Discount to the Trade.

Metal-spaced Hoffman Frame IN GREAT DEMAND.



Patent Applied for.

Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.

PRICES.—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, \$3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up or in the flat.

The A. I. Root, Company, Medina, Ohio.

BEST'S MORTGAGE-LIFTER BEES

are the gentlest, the strongest honey-gatherers, and by far the most rapid breeders, and beautiful, of any bees you will find. I have been among bees for 35 years, and have never found their equal. All tests show them to be better than any other strain. Price for the opening of the season: One warranted queen, \$1.50; tested, \$2.00; select tested, \$3.00; breeding queen, \$5.00; select breeder, \$8.00. Please send orders at once for delivery in 30 days.

BEST-THE-BEE-MAN, : : : : Slatington, Pennsylvania

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Dealer in

BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.
Root's Goods a specialty.

CARNIOLAN QUEENS! and ITALIAN

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

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Italian - Bees - and - Queens The Very Best. . . . No Disease

Untested.....	\$.75	Good Breeder....	\$2.00
Tested	1.00	Extra Breeder...	3.00
Select Tested....	1.25	Very Best B'd'r.	5.00
Two-frame Nucleus with Queen.....	2.00		
Full colony (8-fr.), queen and 5 lbs. bees...	4.00		

F. C. Morrow, Wallaceburg, Ark.

Queens! Three and five band queens; perfect satisfaction and safe arrival. Untested, 60c; select, 75c, or \$8.00 per doz.; tested, \$1.00, or \$10.00 per doz.

R. O. COX, Route 4, Greenville, Ala.

I can Now Furnish You

with the best of queens at 70c each or \$7.00 per dozen. I breed only from imported stock, Leather-banded Italians and Gray Carniolans. I want your orders, and guarantee safe arrival and satisfaction. Write for prices on large orders. Money-order office, San Angelo, Texas. Postoffice, Vigo, Texas.

J. E. Chambers.

QUEENS FOR SALE.

Golden and three banded Italians, untested, 75c; tested, \$1.50, Hardy and healthy. Orders booked now. Write for circular. Mennie & Fenton, Pine Island, Minn.

A. H. Reeves, Perch River, Jefferson Co., N. Y.

DISTRIBUTOR OF ROOT'S GOODS FOR

**NORTHERN NEW YORK
BEESWAX WANTED**

SUPPLIES AT ONCE

There are other times when a little delay doesn't make much difference, but now is coming the time when goods must be had at once TO GET ALL THE SWARMS AND HONEY THAT ARE COMING TO YOU. . . .

Another Carload Just In

Full stock of Dovetailed Hives, Section-Boxes, Danzenbaker Hives, Comb Foundation, Chaff Hives, Smokers, Frames, etc., etc., etc., etc.

All Root's Goods at Factory Prices

We are Jobbers for these bee-supplies and are in a position to furnish all orders, small or large, wholesale or retail. We have the best shipping facilities in the State—Pennsylvania, New York Central, and Buffalo & Susquehanna Railroads—and can get the goods to you quicker and cheaper than any factory in the country. . . . Send for our catalog.

Frank W. Prothero, Du Bois, Penn.

Successor to Prothero & Arnold . . . Clearfield County

A Good Bee-hive!

is made of the best grade of white pine, accurately cut, so it will go together without the use of tools, except a hammer. Such is the kind of hives we make, and such is the kind you get when you buy from us. It is a cinch that we can make lower prices than you can get from any dealer, as you can save the middleman's profits when you buy direct from the manufacturer. We are manufacturers, and sell direct to the consumer. Send us a list of your wants, and let us make you prices. We guarantee every thing we sell to be satisfactory, or refund the money. We have large stocks of Dovetailed Hives, Sections, Shipping-cases, Foundation, Veils, Smokers, etc., on hand, and can ship promptly.

Minnesota Bee-supply Company

John Dell & Son, Proprietor

Power Building No. 20, Minneapolis, Minnesota



Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book.

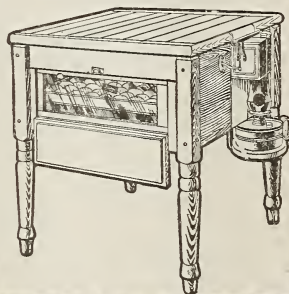
Better send for a copy today. We mail it free, together with a copy of the **Progressive Bee Keeper**, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.

Branches at Omaha, Neb. and East St. Louis, Ill.



CAUCASIAN QUEENS.

Try one or more of my gentle Caucasian queens, said to be the gentlest race of bees in the world, having a sting. The demand for these queens is good; in fact, orders are rolling in now. All orders filled in rotation, as received. Special prices on prompt orders. Untested, \$1.50 each; warranted tested, \$3.00 each. Ready in June. I control all bees within three miles of my apiary, and can promise pure stock. A few choice nuclei can be furnished with a fine queen, when wanted.

Money-order office, Olive Branch, Mississippi.

W. T. LEWIS, Lewisburgh, Mississippi.

Nuclei Queens

Two-frame nuclei, no queen, - - - \$2 25
Three frame " " " - - - 3 25
Select tested (clipped) queens - - - 1 50

S. V. REEVES,

114 E. Park Ave., - Haddonfield, N. J.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. **OUR MOTTO**—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

From Long-tongued Imported Italians.

Trial queen, 60c; Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Postal orders drawn on Decatur, Mich.

E. E. MOTT, Glenwood, Mich.



RED-CLOVER QUEENS AND ITALIANS BETTER THAN EVER.

Average queen, 75 cts. Untested, \$1.00; tested, \$1.25. Guaranteed to work red clover.

"Our red-clover fields are swarming with your bees," says G. W. Slaybaugh, York Springs, Pa.

Laying queens ready by return mail. Guaranteed to work red clover as well as white.

Send for my new circular; it's free. Root's Bee Supplies for sale. **G. RUTZAHN, Biglerville, Pa.**

Queens.

Quirin-the-Queen-Breeder

is, as usual, again on hand with his SUPERIOR IMPROVED strain of ITALIAN BEES and queens. The editor of GLEANINGS, in observing the handling of our bees last fall, remarked that "such stock is in great demand." Years ago we used to be obliged to buy bees each spring to keep us agoing; but now we sell perhaps a carload each season; get tons of honey, and raise thousands of queens. We have bred our bees for business; they have no superior either side of the ocean. For a dozen testimonials see our full-page adv't in the Dec. 15th number of GLEANINGS, or ask for circulars.

Prices of Queens before July 1	1	6	12
Select queens.....	\$1 00	\$5 00	\$ 9 00
Tested queens.....	1 50	8 00	15 00
Select tested queens.....	2 00	10 00	18 00
Breeders.....	4 00		
Golden five-band breeders.....	6 00		
Two-comb nuclei, no queen.....	2 50	14 00	25 00
Full colonies on eight frames.....	6 00	30 00	

Add the price of whatever grade of queen is wanted, with nuclei or colonies, queens ready in April, nuclei about May 10; can furnish bees on Danzenbaker or L. frames; pure mating and safe arrival guaranteed. We employ 400 to 500 swarms in queen-rearing, and expect to keep 500 to 1000 queens on hand ready to mail. Our North-ern-bred bees are hardy, yet gentle; they will give you results. Address all orders to

Quirin-the-Queen-Breeder, Bellevue, Ohio

COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

Yellow from Tip to Tip!!!

My Adel bees and queens are yellow all over. Every queen a breeder, and guaranteed to produce all golden queens and bees; non-swarmers, gentle, great hustlers; \$1 each. Catalog ready. H. Alley, Wenham, Mass.

Profit or Loss

is invariably the result of good or poor stock. A good stock does not require as much attention and gives far better results.

Extra Honey Queens

are a good stock, selected for their pre-eminently good qualities. Try them. They are guaranteed.

Prices

One.....\$1.00 Six.....\$5.00 Twelve..\$9.00

Francis J. Colahan

Bernardo, San Diego Co., Calif.

Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3 1/4 to 7 miles apart. Write name on postal, and get circular and what others say.

JOHN M. DAVIS

Spring Hill, Tennessee, U. S. A.

TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 18 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$8.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Select tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

♥ ♥ J. W. Taylor, Beeville, Texas

Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever. Untested.....60c each; six, \$3.50. Selected untested.....75c " 4.00. Tested.....\$1.00 " 5.00. Selected tested.....1.25 " 5.00. Two-frame nuclei with untested queen..2.00. Orders filled in rotation. Send orders to

E. A. Simmons, Greenville, Ala.

CARNIOLANS our SPECIALTY

WE HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering 50 select imported and 200 best select tested Carniolan queens for early orders.

Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

F. A. Lockhart & Co.,

Lake George, New York

Finest Italian Queens

ALL SEASON I will offer choice Clover Queens and Nuclei, bred from a strictly three-band strain of bees, unsurpassed as honey-gatherers and for prolificness, etc. As to hardness, my strain of bees is simply wonderful. My entire apiary passed this winter on their summer stands, without the loss of a single colony.

Untested queens.....50c Select untested.....75c Tested queens.....75c Select tested....\$1.00
Two-frame nucleus, \$2.00. If with queen, add price of queen wanted. Ask for my circulars.

James W. Bain,

Marion, Ohio

DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

Grade.	One	Three	Twelve
Untested	\$1.00	\$2.50	\$9.00
Select Tested.....	1.50	4.00	14.00
Tested (1905 rearing).....	2.50		
Tested Breeding.....	5.00		
Extra Select Breeding	10.00		
Two-frame Nuclei	2.50	7.00	25.00

DOOLITTLE & CLARK

Borodino, Onondaga Co., New York

Quality Queens

Are the Best Italians yet.

Send for circular. ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀ ♀

H. H. JEPSON,

182 Friend St., - Boston, Mass.

Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$3.00 per dozen. Send for price list.

J. W. K. SHAW & CO.

Loreauville, : : : : Louisiana

Italian and Caucasian Queens

ITALIANS.—Golden or leather-colored or honey queens. Before July 1st: Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Warranted, \$1.25 each; 6 for \$7.00; 12 for \$13.00. Tested, \$1.50 each.

CAUCASIANS.—Untested, \$1.20 each; 6 for \$7.00; 12 for \$11.00. Warranted tested, \$1.50 each.

TWO-FRAME NUCLEI.—No queens, \$2.50; 6 for \$14.00; 12 for \$27.00. Add price of any queen wanted. Nuclei ready by June 1st. Queens ready in May. Breeders from \$5.00 to \$10.00. Book your order now. Safe arrival of all stock guaranteed.

D. J. Blocher, Pearl City, Illinois

WE ARE HEADQUARTERS FOR THE ALBINO BEES,

the best in the world. If you are looking for the bee that will gather the most honey, and is the gentlest of all bees in handling, buy the Albino. I also furnish the Italian, but orders stand fifty to one in favor of the Albino.

Prices: Select tested Albino queens for breeding, \$4.00; tested Albino queens as they run, \$2.50; untested, \$1.00. Italians, tested, \$1.50; untested, \$1.00.

S. VALENTINE,

Rocky Ridge, - Frederick Co. - Md.

California Sage Queens

Old reliable Italian stock from well-known breeders. Bees that get the honey if it's in the field. One select untested, \$1.00; six, \$5.00; tested, \$1.50. Write for a circular.

J. W. GRIFFIN

528 Gladys Av., Los Angeles, Cal.

ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

W. T. CRAWFORD, Hinston, La.

Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

PRICES: Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

W. H. LAWS, BEEVILLE, BEE CO., TEXAS.

Caucasian - and - Italian - Queens

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

A. E. Titoff, Loamosa, San Bernardino Co., California

CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper. Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars to-day. Address

Robert B. McCain, Yorkville, Ills. R. F. D.

Rose Lawn Queens

Italians Caucasians Carniolans

Bred in the purple. No finer on earth. Try one of our pure Gold strain, line bred for color and gentleness. Three banders of the "pat-em-on-the-back" kind that will eat out of your hand. Caucasians from imported breeders direct from the Caucasus. Separate mating yards. A strictly modern plant. Standard prices and honest treatment. Ask for our catalog.

Rose Lawn Apiary, Lincoln, Nebraska

Frank G. Odell, Proprietor

Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

PRICES FOR APRIL

ITALIANS

One untested queen \$1.10
One tested queen 1.50
One select tested 1.65
One breeder queen 2.75
One comb nucleus, no queen... 1.15

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

J. L. Strong, Clarinda, Iowa, U. S. A.

204 East Logan Street

It won't Pay You

to keep those poor colonies when young vigorous queens given to them now will increase your honey crop many times. Italian queens only. I rear my queens carefully, guarantee them good and purely mated, or replaced free on notice. You will find my queens will give you satisfaction. No bee disease here. Prices: Untested, \$1.00; six, \$4.50; dozen, \$8.00; tested, \$1.50; six, \$8.00; dozen, \$14.50; breeders, \$5.00. For larger quantities write for prices.

M. D. WHICHER, Los Olivos, Cal.

Untested Queens!

Golden Italian

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

J. B. Case, Port Orange, Fla.

1906 Italian and Caucasian Queens. Price list now ready. Write **E. E. LAWRENCE, Doniphan, Mo.**

Superior Stock

I make a specialty of long-tongue Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

CHARLES KOEPPEN

Fredericksburg, Va.

SWARTHMORE


niolans—but *do not swarm as badly*. Your attention is especially called to the Banats as a very desirable race of bees. :: :: :: :: :: :: :: :: :: :: :: :: :: :: ::

Price List Direct Imported Queens:

Dark Races

"Banats" are like Carniolans; but do not swarm—very desirable race; \$8.00 each. Caucasians are the gentlest bees known; \$8.00 each—safe arrival guaranteed. Carniolans direct from the best breeder in Austria; \$5.00—safe arrival guaranteed. "Funny little Bees from Japan" will be bred from direct imported stock later.

Light Races

Italians from non-diseased district in Italy; fair, \$3.00; breeding, \$5.00. Cyprians direct from the best breeder on the Island of Cyprus, \$8.00. American Golden-all-over Queens have taken Grand Prize wherever shown. Select untested, \$1.25.  Send for circulars.

E. L. PRATT, Swarthmore, Pennsylvania. Home-bred Queens of any of the above races on order.

BEES and QUEENS

The Three-banded
Long-tongued Strain
of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

Superior Qualities.

Honey-gathering, size of bees, non-swarmling, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

Quality Our Motto.

1300 colonies to select from.

Untested queens.....\$1.00; 6, \$5.00; 12, 9.00
Select untested queens.... 1.25; 6, 6.00; 12, 11.00
Tested queens..... 1.50; 6, 8.00; 12, 15.00
Select tested queens..... 2.00; 6, 11.00.
Breeding queens, \$3.00 to \$5.00.

Yours for best service,

The Victor-Knolle Apiary Co.,
Hondo, Texas.

QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

George W. Barnes,

138N. Pleasant St.

Norwalk, Ohio.

Red-clover Queens from Westwood Apiary will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.
Henry Shaffer Westwood, Ohio

Boston Headquarters — FOR — Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

H. M. PARKER, Jr.

James Island, South Carolina

You are Losing Money

by not Introducing
Our Queens through-
out Your Apiary. . .

They are bred from pure Italian stock, red-clover strain; hardy Northern grown. Prompt shipments at these prices:

Untested.....\$1.00; 5, \$5.00 for six
Select tested..... 1.50; 5, \$7.50 for six
For prices in larger numbers and breeders write us.
Orders for delivery after May 15th now being booked.
Get your order in early.
Handsome booklet mailed free upon request.

B. C. Terry Co., Hinsdale, Ill.

Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,

Box 18, Beeville, Bee Co., Tex.

Queens! Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. . . . Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say what your advertisement is in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Second hand typewriter, Oliver preferred, for bees or supplies.

Bee Man," Williamsport, Pa.

WANTED.—Refuse from the wax extractor, or slumgum. State quantity and price.

ORIEL L. HERSHISER,
391 Huntington Ave., Buffalo, N. Y.

WANTED.—You to own good queens; no delays; satisfaction. See my ad. on page 696.

M. D. WHITCHER, Los Olivos, Cal.

WANTED.—100 Hoffman frames with healthy worker comb, shallow extracting-frames, and two-frame extractor.

J. H. CROUCH,
145 Third Ave., Rensselaer, N. Y.

WANTED.—For delivery by June 1st six five-banded golden breeding queens, for a special customer. These must be extra-fine breeding stock, golden to the tip. Mention price and full particulars.

THE A. I. ROOT CO., Medina, Ohio.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.

H. F. HAGEN, 1632 Blake St., Denver, Col.

WANTED.—To exchange 500 chaff hives, also Carniolan queens, for honey (hives in flat). Both are as good as can be produced. I have a good market for best quality of white-clover honey and a little buckwheat, but can not raise profitably. Will allow Chicago price for honey. No poor grades of honey wanted.

W. W. CUM, Pekin, Ind.

WANTED.—Save your slumgum. I will buy it. Let me know how much you have; in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

UDO TOEPFERWEIN,
1322 South Flores St., San Antonio, Tex.

Help Wanted.

WANTED.—Young man with several years' experience with bees to help care for 400 colonies and work on farm; \$30.00 a month and expenses to a good man.

R. T. SINNETT, Delta, Colo.

WANTED.—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburg, Pa.

For Sale.

For SALE.—About 60 colonies of bees and all my fixtures cheap.

H. C. GILSON, Burr Oak, Mich.

For SALE.—Three-frame nuclei, with Italian queen, at \$2.25.

WM. H. STANLEY, Dixon, Ill.

For SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog.

F. R. DANIELS,
117 Florence St., Springfield, Mass.

For SALE.—Full colonies of bees at \$4.00 a stand in lots of 10. J. GOBEL, Glenwood, St. Croix Co., Wis.

For SALE.—400 new extracting-combs cheap. Write to R. G. JORDAN, Chenoa, Ill.

For SALE.—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051. C. K. C., Lovelock, Nev.

For SALE.—Best land for bee-keepers, farmers, dairymen. Cheap. Write us. WRIGHT-ROBINSON, Cumberland, Wis.

For SALE.—Leather-colored Italian queens; all queens reared in full colonies; untested, 75c. J. L. GULLEY & SON, Rt. 8, San Antonio, Tex.

For SALE.—Three-frame nuclei and Caucasian queen from my out-yard, \$2.00 f. o. b. railway; no foul brood in our county. W. T. LEWIS, Lewisburg, Miss.

For SALE.—One carload of Italian bees in ten-frame Dovetailed hives, in perfect condition, at \$3.75 per colony. Address THE HYDE BEE CO., Floresville, Tex.

For SALE.—Bee-supplies, berry-boxes, etc.; best polished sections, \$4.50 per M. Catalog free. J. J. BRADNER, Marion, Ind.

For SALE.—Twin mating-boxes cheap; just what you want. Investigate. M. D. WHITCHER, Los Olivos, Cal.

For SALE.—Full colonies of bees with queen in strong shipping cases, \$3.25 each. ALICE NYMAN,
429 Van Houten Ave., Passaic, N. J.

For SALE.—150 swarms of bees in eight-frame L. hives, extracting-supers, extractor, and tanks. J. A. BROUARD, San Luis Obispo, Calif.

For SALE.—The Alexander wire bee-veil. The best face-protector on the market. Try one and be convinced. At 75c each postpaid.

FRANK C. ALEXANDER, Delanson, N. Y.

For SALE.—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.

M. V. PACKY, Preston, Fillmore Co., Minn.

For SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

For SALE.—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

For SALE.—Twenty-five colonies of Italian bees in Danzenbaker hives (newly painted, good condition) \$5.00 a colony. M. C. LONG,

Missouri Ave. and Main St., Kansas City, Mo.

For SALE.—A 3 h.p. gasoline engine; the best make on the market; will sell on a positive guarantee; run less than two months; have purchased a 7-h p. of same engine. B. L. FISHER, Rocky Mount, Va.

For SALE.—75 per cent profit; good opportunity; will sell a registered (patent office) article, or swap. Best offer takes the outfit. Apply or address G. W., care A. I. Root Co., 44 Vesey St., New York.

For SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

For SALE.—A 40-acre tract of land in the Grand Traverse country, the raspberry region of Michigan, about 25 acres of which are cleared and fenced; a house, barn, bee-cellar, root-cellar, poultry-house, etc. About 350 fruit-trees, 60 of which are bearing; about 75 colonies of bees, and hives for 75 colonies more; also many supers and fixtures, making a complete apiary, in a choice location. CLINTON F. PULSFER,
1022 S. Main, Mount Pleasant, Mich.

FOR SALE.—Excelsior printing-press with 15 cases of type; chase 7x14; fine shape. Box 95, Medina, Ohio.

FOR SALE. 100 strong healthy colonies very cheap; 8 lbs. bees to hive. See my ad. on page 691. First order to each State at half price.
F. C. MORROW, Wallaceburg, Ark.

FOR SALE.—Second-hand empty sixty-pound honey-cans, two in a crate; in lots of 10, 40c per crate; 25 or more crates at 35c per crate.

THE FRED W. MUTH COMPANY,
51 Walnut St., Cincinnati, O.

Poultry Offers.

FOR SALE.—W. P. Rock eggs, \$1.00 per 15; Fishel strain. J. F. SMITH, Waynesville, Ill.

B. P. ROCKS.—Eggs, \$1.00 per setting; 14 chicks guaranteed. MRS. EDITH CHELTON, Landonville, Md.

FOR SALE.—24 Wh. or Br. Leghorn eggs for \$1.00; also other varieties. J. A. RUBECHT, Telford, Pa.

FOR SALE.—Choice White P. Rock eggs from farm-range stock, \$1.00 per 20; \$2.00 per 45; \$4.00 per 100.
F. E. SCHRIVER, Rt. 2, Forest, O.

FOR SALE.—Rhode Island Reds, White and Barred Rocks, White Wyandottes and Leghorns, Light Brahmas. Farm bred, pure stock. For birds (moderate prices), or eggs to hatch, at 8c each, write
WALTER SHERMAN, No. 100 Boulevard, Newport, R. I.

FOR SALE.—15 White Wyandotte eggs, \$1.00; nice cockerels, \$1.00 each. Duston strain; seed corn. Circular.
J. F. MICHAEL, Winchester, Ind.

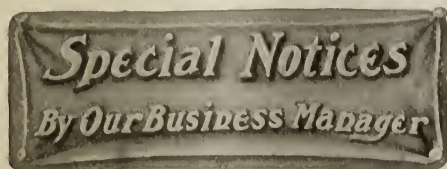
Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

FOR SALE.—Fifteen hybrid and mismated queens; good ones; 25 to 35c each.
LOUIS WERNER, Edwardsville, Ill.

FOR SALE.—Fifteen hybrid queens; all last year's rearing; excellent honey-gatherers. Get Northern stock; 30c each, six for \$1.50; delivered after May 20.
W. L. NYGREN, Maine, Minn.

FOR SALE.—Queens from an Italian queen whose daughters have seven frames of brood May 1 this year. We call them hybrid hustlers. 60 cts.; tested, \$1.00.
MRS. J. W. BACON, Waterloo, N. Y.



NO. 2 SECTIONS.

We wish to direct attention to our No. 2 grade of sections. We have an unusually large stock of all standard sizes, both beeway and plain, and the quality is far above the average for No. 2 grade. Indeed, we believe they are superior to many so-called No. 1 grade on the market to-day. The great majority are perfect in all respects except that they are somewhat creamy in color. The wood is as strong and the workmanship fully equal to the No. 1 grade. Our surplus stock of

No. 1 grade is exhausted, and we may have difficulty in making them fast enough to supply all orders promptly. In many cases it may be an advantage to get No. 2 grade promptly rather than have orders delayed waiting for No. 1. Your honey will look as well and sell as well in No. 2 sections as in No. 1. Let us have your orders for a larger proportion of the No. 2 grades. We are running overtime on both sections and comb foundation in an effort to supply them as fast as needed.

COMB FOUNDATION.

We have been fortunate in securing an adequate supply of beeswax to keep our foundation machinery running to its full capacity. The demand for foundation has been enormous, and it takes a lot of wax to keep us going. We have secured from one firm within a few weeks as much as ten tons. We hope now to get through this season without raising the price of comb foundation. For the present we continue paying 29 cents cash, 31 in trade, for average wax delivered here. The price will, no doubt, be marked down somewhat next month. If you have any wax to dispose of we would advise your shipping it without delay.

BIGELOW EDUCATIONAL HIVES.

We have arranged to supply the trade with these hives on short notice at the following prices:

Bigelow educational hive complete, as shown page 590, in pine, nailed and varnished.....	\$20.00
Same, in oak.....	25.00
Either of the above furnished, with glass only omitted, at a reduction of.....	1.50
The feeding-board and one and two frame hives may be omitted if desired, and price reduced by.....	5.00
Flying-cage in pine, no wire or glass.....	3.00
Same, in oak.....	4.00
Magnifying feeder, with lens, in pine.....	4.00
Same, in oak.....	5.00

Samples of these hives may be seen in our New York and Chicago offices, at 44 Vesey St. and 144 Erie St., respectively. Fuller particulars on application.

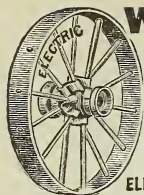
NOTE.—In running the above notice in the May 1st issue we made the following error: "Mahogany feeder" was printed instead of "magnifying feeder," as above.

THE PEARL AGNES HIVE.

A complete little hive. Just right for teachers of small schools, and others who want to study the bee for a short time at little expense: with 5 brood-frames 5½x8, and super holding 20 sections 2x2½x1½, with necessary fences, complete with foundation at the following prices: each, nailed and painted, \$2.50; in flat, \$1.75; 10, in flat, \$15.00.



Filled with bees and untested Italian queen, this hive can be sent at low cost by express. We expect to make deliveries from apiaries in various parts of the country after June 1. Price of complete hive with bees and queen, with smoker, veil, and book of instructions, \$5.00.



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

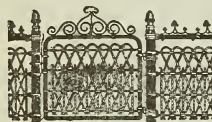
It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.



EXTENSION AXLE NUTS CURE WABBLES.

Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory. Hardware Specialty Co., Box 535, Pontiac, Mich.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address COILED SPRING FENCE CO. Box 448 Winchester, Ind.



GOLDEN

Opportunities!

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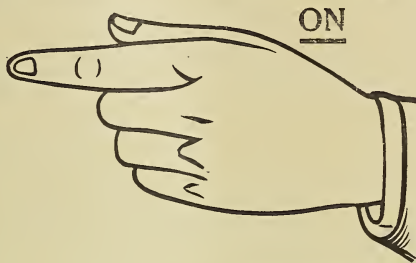
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